Annotated List of the
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Annotated List

OF THE

Wild Flowers *of* California

By

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University of California

President of the California Botanical Society

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DEDICATED TO THE

THIRD ANNUAL CALIFORNIA WILD FLOWER FETE

FOR THE BENEFIT OF THE

BOYS' OUTING FARM

ACKNOWLEDGMENT

We desire to acknowledge with sincere thanks the assistance given to us by Miss Anna Maude Lute who has read proof and aided us by timely suggestions. The beautiful cover design is the work of Chesley Knight Bonestell, Jr.

P. B. Kennedy.

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By Bertha M. Rice

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CALIFORNIA'S ANNUAL WILD FLOWER FETE

The California Wild Flower Fete is held annually under the auspices of and for the benefit of the Boys' Outing Farm.

This interesting event was inaugurated at the Panama-Pacific International Exposition on April 24th, in 1915. April 24th has since been proclaimed "California Wild Flower Day" by Governor Hiram W. Johnson, and speedily became one of the recognized and popular institutions of the State. The event is largely participated in by the leading Botanical Societies, Naturalists, Scientists and interested people from all parts of the country.

On April 24th, 1916, Wild Flower Day was celebrated at the Fairmont Hotel, in San Francisco, with a wonderful display of the State's flora.

The Third Annual California Wild Flower Fete, held at the Fairmont Hotel in 1917, from April the 24th to 28th, inclusive, has become a matter of national interest. Wild flowers have been sent from every portion of the State, arranged and classified by leading botanists. Shrubs and trees were supplied by the United States Forest Service. A fine display of native grasses was furnished by the University of California. The Leland Stanford Junior University has also given hearty co-operation in the collecting and classifying of flowers. Mark Daniels, former Superintendent and Landscape Engineer of national parks, has given his services as director of the display. John McLaren, Superintendent of Golden Gate Park, has been actively interested, and has contributed much material to the exhibit. Members of the California Botanical Society, the Sierra Club, the State Floral Society, Mills College, Miss Murison's School Girls, the San Leandro Publis Schools, the Outing Farm Boys, and many others have given much time to the securing of rare specimens for the display. It is impossible at this time to give credit to all who have materially aided in the success of the Wild Flower Fete.

Mrs. Bertha M. Rice, Chairman of California Wild Flower Day, who has planned and directed the affair during the past three years, and who has been untiring in her efforts to make the event one of real educational value and spiritual uplift to the State at large, has organized the "California Wild Flower Fete Association," composed largely of the former members of the Boys' Outing Farm, who will unite their efforts in furthering the success of California's Annual Wild Flower Fete, in hopes that the funds realized from this yearly exhibit of the State's flora will place the Boys' Outing Farm, a beautiful mountain retreat for city children, on a self-supporing basis.

At the annual meeting of the California Botanical Society, held in Berkeley on Saturday, April the 14th, this plan was heartily approved and endorsed by the members. A resolution was adopted by the California Botanical Society to co-operate with and assist the boys in every possible way. The Wild Flower Fete Association is receiving the endorsement and sympathetic support of many prominent organizations and individuals, who are in touch with the work accomplished by the Boys' Outing Farm.

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Exposition Grounds, San Francisco,

April 24, 1915.

To Mrs. Bertha M. Rice,

Director of Wild Flower Day:

After examing the exhibits of wild flowers gathered by the various counties of California, we the committee of Judges make the following report.

Surveying the whole exhibit we find it to be a credit to the great State: thousands of flowers were sent in from every nook and corner of the commonwealth. We especially commend the fine exhibits of Trinity County, with her rare blossoms picked by school children and sent in from remote valleys — Alameda County, with her remarkable variety of flowers, numbering over two hundred kinds — Contra Costa County, with her beautiful white lilies, her delicate harebells — Monterey County, with her eighty varieties of blossoms and her fragrant sprigs of cypress — Sonoma County, with her poppy sheafs and banks of wild hyacinths — Santa Barbara County, with her lavish decorations of mustard and brodea — San Francisco County, with her poppies, lupines, wild violets, fleurs-de lis

Southern California appeared with her wonderful yuccas, and the San Joaquin and the Sacramento valley with their banks of delicate blooms. These flowers came from these vast expanses that are alive with blossoms —

"Miles beyond miles of every sovereign hue
And trembling tint the looms of Arras knew —
A flowery pomp as of the dying day,
A splendor where a god might take his way."

And now we come to Santa Clara County, with her multitude of blossoms, all artistically displayed, and distributed to all comers with a fine generosity. The display of this county surpassed all others in the quantity and beauty of her flowers. For these reasons we award to Santa Clara the Silver Trophy commemorating Wild Flower Day — a day that we hope will become a permanent feature of our Californian life.

Edwin Markham
Madge Morris Wagner.
Marian Taylor.
Kathryn A. Conover.

THE CHILD AND NATURE

By GUY SMITH, of San Leandro School

Dedicated to the Boy's Outing Farm

A half century ago the majority of our people were living in small towns and on farms. Reared in such surrounding the growing youth could not get away from nature; turn where he would, the things of the out-of-doors greeted him. There was the pasture, with its myriads of flowers and nectar-seeking insects to occupy his attention, and develop his sense of observation. The old orchard was a constant delight, while the creek and old "swimmin' hole" were better than any moving picture show.

Life was not always easy; there were the daily duties to perform, but withal the youth had room for his powers to expand.

The sad thing about the development of our modern industrial life is, that it has taken the child from a natural interest-absorbing environment and placed him in artificial surroundings.

This contact with nature is a heritage which civilization has no right, and in fact, cannot afford to take from the child.

If you want to see a child grow, take him to the country or to the hills where the things are not made, but where things just grow, and see little Johnny grow along with them. One cannot overdraw this picture of expansion. You can just feel the influences that are literally pouring into the little life.

In order to appreciate the fine things of life, one must first appreciate and understand God's great outdoors.

One can better appreciate the soul stirring strains of the masters if he has heard the songs of the wild creatures in the woods. How can a painting inspire if one has not observed the wonderful color combinations found on a California hillside in spring? How can the work of the sculptor be valued if one has not observed the carvings of the Master Sculptor?

How then can the city child get this influence which is so important?

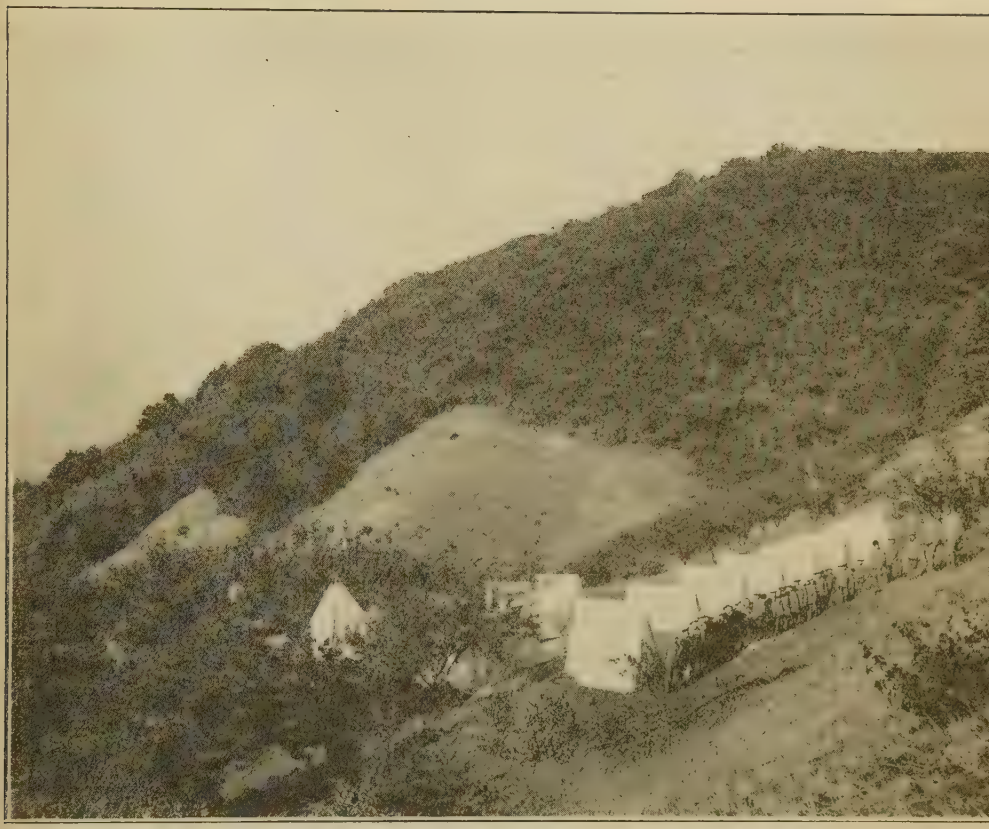
There are various ways, but the following is suggested. Hold exhibits of the wild things. Bring them to his door, enthuse over them. He will get the spirit. He will want to go where they grow. Organize hiking and camping clubs. Develop school and home gardening. Many of the secrets of nature can be discovered in your own back yard, or in a window box. Let the child plant a seed and watch it grow. Incidentally, watch the child grow along with it.

The American people are just beginning to realize the place and importance of the fundamental industry, agriculture. If it had not been for the immigrant, long ago we would have starved. Because of this short-sightedness, there has been a mental, moral, physical and spiritual loss to the race. We now see the error of our ways and are preaching the back to the soil movement. Men and women who are reared in the artificial environment of the city and who have not received the influences mentioned in this article cannot stand the solitude of country.

The back to the soil movement cannot succeed until we can send men and women into the country who can feel with Byron "There is a pleasure in the pathless wood."

There is a rapture on the lonely shore,
There is society where none intrudes
By the deep sea, and music in its roar.

Every child is open to the influence of nature. They love it, they feel it, it is real. It should not be taken from them.



THE BOYS' OUTING FARM

By Roland Rice

Many have devoted their time to boy-work. A few have sought the practical, and have based their work on rational study and experiment.

The nature of the work must vary according to the conditions of the locality. This is true of the Boys' Outing Farm in the Santa Cruz Mountains, intended as a place to provide suitable vacations for normal working boys of the city.

The main feature of the original plan of this institution was, and still is, that the normal, the average, good working boy of the city be given a short vacation in the country, assisting those who are most worthy and who would otherwise be unable to go.

Our work is complex and varied, because we deal with life. We deal with the youth in the flower of his adolescence and prior to it, with its vagaries of thought and fancies and with its disillusionments. Each boy is different. Each has a special temperament, racial tendencies and characteristics, and different home surroundings. It would be a difficult task to go into the details of working with these problems, as they involve things little understood by the public. This work is for the specialist. It is not a field wherein theories or speculation count. It deals with facts; and facts are obtained only by an impartial investigation of cause and effect.

Early in the work it was found that there was a tendency to get something for nothing. To overcome this trouble is one of the greatest problems of a charitable work of this kind. There are many exceptions to this rule, but the difficulty is to distinguish them. There is nothing more harmful to a child than to let it grow up with the thought that he or she can get something for nothing, or without having earned it in some way. Charity is at its best when it stimulates and assists those who are objects of it to help themselves.

These Outing Farm Boys pay their railroad fares, buy their own uniforms, which are serviceable for camp life, and provide their own blankets; this gives them the feeling of doing something for themselves. We insist on the uniforms for the reason that it is desirable to have them wear something serviceable, and their city clothes would not stand the wear and tear. It also gives the camp a greater air of democracy which the mixture of fine, medium and poor garments would not give.

The boys all come with the knowledge that they come on their merits, as good boys with a fair record, and that they could not come otherwise.

They come in the summer only, and remain from six to eight weeks. Some cannot stay more than two, as they must return to work. A few are sent by parents who cannot afford to take them and who are trying to get a little beyond a bare making of both ends meet. The boys must all be under the age of fourteen.

At the commencement of school vacation the camp opens. The number ranges from thirty to sixty during the summer. Semi-military discipline is employed for the purpose of systematically conducting the camp. It is not harsh. The boys rise promptly at six-thirty and fall into line. After a short series of setting-up exercises they wash and fall in for first mess. When the meal is over a general camp-cleaning ensues, then an inspection of quarters. The rest of the day is free with the exception of the ceremony of retreat at sundown and taps at nine-thirty.

But what do we do with them? Do we merely take these boys down to a place on the mountain where the scenery is beautiful and the air invigorating and expect them to amuse themselves in whatever way they chose?

The work is educational and it is inspirational. But that remains for the worker who directs their energies and gives them their inspiration. This is where knowledge of the boy comes in and the subtle methods of the psychologist find play. This is where body-building and morals have their brief opportunity. This stage of a boy's life is the time to do him the most good. Therefore, in directing their sports (for that is all it is to them, and all it should be) we endeavor to make the most of the opportunity.

To make the work educational we have adopted two different phases—the Field Study Club and the theatre. In the Field Study Club an effort is made to interest them in the things around them—to give them an elementary knowledge of wild life. In the spring various kinds of animals—birds, snakes, lizards, etc., are caught, for here are opportunities to impress the boy's mind while it is in its most receptive state. And this is when knowledge of the natural laws of life may be conveyed in such a way as to have a permanently good effect upon his mind. The things taught are those which may be of use some time and which start his mind toward reasoning.

In their studies the boys are arranged in different classes, but the spirit of study is left out. It is easy to get them to discuss the ways of the snake, and when they see it eat they are sure to become interested. All are encouraged to hunt for specimens of bugs and butterflys, and strange flowers and plants. When they find any they are always curious to learn something about it.

The chief aim is to give the good city boy something to look forward to as a reward for his virtues. Everything is done to make his vacation a wholesome one. Athletics, swimming, fishing and hiking trips are encouraged and carried on. In fact, hiking trips to the Big Basin and through the San Lorenzo River Valley are made every summer. On these trips the Field Study Club has unlimited opportunities. The giant redwoods, the azalea-blossomed banks of the upper San Lorenzo, with its trout, and the wild animal life of the hills, all hold the interest of the boy.

They pack their blankets and equipment with the aid of two burros, for whom the boys have a great deal of affection, treating them with the utmost kindness. The cooking is superintended by the man in charge. But the boys have ample opportunities to get the knack of throwing flapjacks and learning other tricks of an outing life. When the boys are on the march they are put to the task of drawing a rough map of the country as they go along. In this way they pick up useful odds and ends of knowledge. At night the stars which he sees, while he hears of the work of the astronomers, prompts his imagination, and when a visit is made to Lick Observatory on Mount Hamilton he listens with unusual comprehension to the professors, who are so kind to the boys in explaining things to them.

During the past few years the boys have displayed considerable talent in acting by amusing themselves around the campfire every night with charades and comedies. We have encouraged them in this and have studied various ways to make use of it for their own betterment.

The boy, if you can make it a pleasure to him instead of work, is willing to go to any length to acquire excellence in his part. By making use of the dramatic instinct wonders may be attained in transforming and inspiring the youth. To make him ambitious is our aim. To do that, it often helps to make him someone of importance in fiction for a moment; the effects will not wear off for some time. It will be noticeable in the carriage of the head, the straightened shoulders, self-respect, and an analysis of the parts portrayed.

Not only in the theatre do we teach self-respect to the boy; in all the ten years of work the boys have been expected to be gentlemen, and they show it in their manners. By doing that which is becoming to a gentleman, they easily fall into the habit of it.

It has been decided to make acting one of the principal factors of the camp; a Greek Amphitheatre has been commenced, that we may handle this art to better advantage.

One of the most pleasing features of the camp is the ease with which the boys accustom themselves to it. One of the older boys, who was with us several years ago and who still has an interest in the place, writes, "It may seem strange, perhaps, but any boy who becomes a guest of the Farm immediately makes himself at home with its routine." That is because the life of the camp is attractive to them. They behave well, for the only punishment is the removal of privileges, and expulsion.

A good cook is employed. The food, while plain, is plentiful and very good. It is one of the most essential things needed for promoting health and happiness, and an institution of this kind must depend on it for a large part of the good it does. It has long been known that if you feed a boy plenty of wholesome food very little trouble is encountered in keeping him good-natured. But a boy must also be kept busy at something, and that should be directed by someone older, but able to take part in it with them. That is why the younger the man in charge of the boys, the more success he is apt to have with them, if he can swim and lead them about and instruct them in all the things they do. This has been proved by the men who have been in charge of the camp under the direction of Mrs. Rice.

The boys learn real camp life on their trips about the country. At the Farm they have limited self-government, and manage their affairs well. They attend to the sanitation of the camp and practice strict rules of hygiene. Groups are organized which practice scouting, get up swimming tournaments, and make preparations for extended trips, under the direction of the man in charge. They rehearse their plays with the help of a director.

The Farm is a base of operations during the summer. It is the place from which they start and to which they return to rest. Arrangements are made for all of the boys to see the different places of interest in the surrounding country, and they go in small parties at various times during the summer; hence the boys are seldom all at camp at the same time.

The physical aspects of the place have done much toward shaping the nature of the work. There is something about its position, high on the side of a mountain and overlooking the Santa Clara Valley, which gives the place an atmosphere most desirable as a change from the narrowness of the city. The scenes are never

the same. The aspects of the Valley are always changing. The Farm is above the fog which occasionally drifts up the valley during the night and shows like a great white sea in the morning. It shows vast waves tumbling about in the early sunlight; they melt away before ten o'clock. The noise of the cars is faintly audible, and they may be seen skimming along like little toys following a white line.

The Boys' Outing Farm is the outgrowth of the relief work of my mother, Mrs. Bertha M. Rice, among the refugee children of San Francisco after the great fire of 1906. It started by outing trips for a day in the Santa Cruz Mountains. In 1907, in response to my mother's pleas, a place of eighty acres in the mountains two miles above Saratoga was bought and paid for by the people of Santa Clara County, by subscription. This is the first instance known where the people of one community have set aside a place for the people of another. The land is held by the Boys' Outing Farm Association, incorporated for this purpose, and is in charge of Mrs. Rice, its founder and executive officer.

The first summer camp was quite a success. The boys were under the supervision of two school-teachers. The second summer was good and the equipment was much better. The first two years were devoted to the children of the refugee camps. But as the conditions changed and the camps no longer existed, the children have since come through the schools and various institutions. The third and fourth years saw important changes in the work and the addition of a swimming-pool and other improvements. Mrs. Rice superintended the work during the third summer and has since continued to do so.

The work of the Boys' Outing Farm is not generally understood. This is the first time that the work has been authentically set before the public.

During the first few years the Farm attracted favorable attention all over the coast. But the institution has never sought notoriety, and for that reason has not received the support which its merits should command. For in health, widened outlook and inspiration its benefits to the boys of the city are incalcuable.

The buildings are but temporary structures for use in the summer until more permanent ones can be erected. They comprise two small cottages; one is occupied by Mrs. Rice and her secretary, and one is for the employees. The others are a kitchen and bathrooms, two storehouses and a dining pavilion. There are also lavatories and a barn. A fine concrete swimming-pool and a wading-pool are down near the creek, and at the base of the big hill in back, the Greek Amphitheatre is being built.

In the spring a colony of tents spring up, and in these the boys live. Although the camping season is confined to the summer months, we entertain a few children at other times during the year. We frequently arrange holiday excursions for the children of various institutions, and many schools and clubs have been entertained at the Farm. Camping privileges were extended to the Boy Scouts of San Francisco and San Jose during 1910 and 1911, and at the close of our regular season similar privileges are occasionally extended to needy families and institutions.

The eighty-acre tract is mostly wooded hillside, containing two picturesque canyons, but there are several acres of orchard and cleared land. We have cherries, plums, prunes and walnuts for the use of the camp.

Many of the old orchard trees are being removed, and will be replaced.

An abundant water supply is one of our most valuable assets.

The lack of funds makes progress slow in improving the place. The work thus far has relied on the support of the public by subscription, and this has been barely sufficient to pay expenses during the summer.

The institution is no longer an experiment, and the time has come when permanent improvements of a substantial nature should be made, to make the place useful the year round. We therefore desire the influence and aid of all who are interested in work of this kind, which the Boys' Outing Farm has done so well.

THE PROTECTION AND PRESERVATION OF CALIFORNIA'S FLORA

BY W. L. JEPSON

It is not so long ago that the soft curves of the hills from their summits to the bay shore were yellow in March with the abounding bloom of the California Buttercup, while on the flats and plains Baby Blue-eyes, Allocaryas, Eschscholtzias, Owl's Clover and Cream Sacs contended to monopolize the traveler's attention. These broad sweeps of color have given way in great part under the pressure of civilization. Man takes the land for his uses,—streets for his cities, pasture for his herds, fresh sweet earth for the moldboard of his plow. The land that was once a wild garden of fine and singular beauty is now a land of homes and smiling cultivated fields. We would not have it otherwise. And yet there are still left here and there, relics of the former native flowering, that have an historical value, that tell us what once was, and that are worth while to save. A people who have no wild flowers lose one of nature's great resources; a people who are not in delicate and sympathetic touch with the wild creatures have through that medium lost touch with the universe. We must save representative formations of our wild life because it is one of the strong assets of a finer civilization. We gather strength from the hills,—but not if they are absolutely naked and desolate. Association with the native plants in the canyons and fields is enlivening, heartening and restful,—it stimulates the better parts of our nature, enlarges the understanding, deepens the sympathies, and widens the vision. For such joyful experience tourists travel from the ends of the earth to see the flower fields of the Engadine in the Swiss Alps. So will they to see the burning poppies and purple Shooting Stars of California if we safeguard our wild life and make it a quest.

Through high good fortune we have two great and most wonderful flower preserves in the Sierra Nevada,—the Sequoia and Yosemite parks. We should have many such in the Coast Ranges, though for the purpose they need not be so extensive. Even a few acres judiciously located may serve as a public or private refuge for the native creatures.

Diffusion of popular knowledge concerning the native flowers is a great and worth-while object, because he who does not know them is missing enjoyment which cannot otherwise be replaced. Then, too, when everyone knows the native flowers, public opinion will be strong enough to protect them. Protection cannot be had by legislation, nor by penalties. If we are sane in our use there are wildflowers for all,—to have and to hold. Purple of Larkspur and yellow of Mariposa, cream of Meadow Foam, kisses of Red Maids, and spurs of Yellow Pansy. But indiscriminate slaughter, the picking in hosts beyond any possible power to enjoy,—this is a kind of destructiveness which even the savage does not practice.

Down through the centuries by the way our race has come it has been guided by rallying cries,— brief calls from mouth to mouth, telling a world of feeling against usurper, vicious custom, or local abuse. So must we now invent calls as one of the ways to help in wild flower preservation.

In the long run protection must come by the devices and resources of united effort, high intelligence, and careful handling. We must work for it, plan for it, strive for it. It is a noble object. If the beauty and glamour of the Golden Land in its youth can be preserved and harmonized with the practical phases of our civilization, then we may proudly say that our race was fit to possess and use this land, fit to enjoy it and to keep it, rising to the spirit and glad wonder of Nature in the valleys, mountains and canyons of our California.

INTRODUCTION

We have made bold to present this little booklet in an emergency so that the participants in the Third Annual Wild Flower Fete might have something that would convey in a permanent manner the immense scope and variety of plants comprising the flora of California.

The work has been accomplished by utilizing persistently for a period of about two months several of the "wee sma" that bring today and tomorrow in close communion.

It was the intention at first to omit a number of the large families like the grasses, conifers and ferns, but the list seemed so inadequate without them that a decision was made to include all and to seek the aid of friends to further its completion. The first to respond to the call for help was Mrs. Harriett P. Kelly to whom we are indebted for the material on a large number of the families including the Liliaceae and Coniferae. Through the exceeding kindness and generosity of Mrs. Carlotta C. Hall, the authority on the ferns of the State, we are able to present a complete list of the ferns here published for the first time.

Mr. L. S. Smith, R. P. Bledsoe and R. Gardner, students in the class in Agrostology at the University of California, are largely responsible for the grasses.

For lack of both time and space it has been necessary to omit the listing of the species of the large genera like Astragalus, Lupinus and Trifolium in the Leguminosae Aster and Chrysothamnus in the compositae and carex in the cyperaceae.

An endeavor has been made to note the plants of food value for man or stock, and those with medicinal properties.

Four hundred or more of the species which we have come to regard as our own are in reality introductions from other countries. Some of them are exceedingly valuable forage plants. Many are neutral while others invade the domains of the farmer and seriously interfere with the maximum production of his crops.

It has been our joy and privilege to have been closely associated with wild and cultivated plants from early boyhood to the present time. As a member of a Boys' Club, some fourteen strong, and fourteen years, we made long excursions to the country bringing home with great pride the violets, primroses, cowslips, harebells and hyacinths of the woods to plant with much care in our gardens. And so this early found inspiration is still with us and leads us to believe that the Boys' Outing Farm, the California Wild Flower Fete and an annotated list of wild flowers are all worth while and have behind them the making of men.

Annotated List of the Wild Flowers of California

BUTTERCUP FAMILY RANUNCULACEAE

1.	Traveller's Joy Virgin's Bowers	Clematis ligusticifolia	General throughout the State, having much beauty both in flower and seed. Vines.
2.		Clematis lasiantha	
3.		Clematis pauciflora	
4.		Clematis verticillaris	
5.	Wind-Flowers	Anemone occidentalis	High mountains and redwoods.
6.		Anemone multifida	
7.		Anemone nemorosa	
8.	Meadow Rues	Thalictrum polycarpum et al.	Coast and Sierras, delicate, graceful herbs with leaves resembling maiden hair fern.
9.	Mouse-tail	Myosurus minimus	Wet, frequently alkaline soils of the Great Interior valley, and beneath sagebrush, Sierra Valley. Small plants with a conspicuous elongated receptacle resembling a mouse's tail.
10.		Myosurus aristatus	
11.	Water Buttercups	Ranunculus hederaceus	Aquatic, extremely variable and often segregated into many closely allied species or varieties.
12.		Ranunculus aquatalis	
13.	Land Buttercup	Ranunculus hystriculus	Foothills Sierras. Resembles an Anemone.
14.	Pink Buttercup	Ranunculus Andersonii	Eastern Sierras, pinkish blossoms and unike a buttercup. An interesting plant. Perennial.
15.	Creeping Buttercup	Ranunculus Flammula var. reptans	Sea level to 6,000 feet.
16.		Ranunculus alismaefolius	Lower altitudes.
17.		Ranunculus alismaefolius var. alismellus	Sierras.
18.		Ranunculus trachyspermus var. Lindheimeri	Napa Valley
19.	Saline Buttercup	Ranunculus Cymbalaria	Wet saline soils.
20.	Foothill Butercup	Ranunculus glaberrimus	Eastern Sierras.
21.	Alpine Buttercup	Ranunculus oxynotus	Near snow, Sierras.
22.	California Buttercup	Ranunculus californicus	Most common species in the State, especially coast hills.
23.	Eastern Buttercup	Ranunculus repens	Introduced.
24.	Giant Buttercup	Ranunculus macranthus	Near the coast, sometimes five feet high.
25.	Nelson's Buttercup	Ranunculus Nelsonii var. tenellus	Sierra Nevada—Yosemite.
26.	Rough-seeded Buttercup	Ranunculus hebecarpus	Coast ranges and foothills of Sierras.

27. Spiny-fruited Buttercup	Ranunculus muricatus	Introduced—Streets of San Francisco and waste places.
28. Marsh Marigold	Caltha leptosepala	Sierras.
29. False Rue Anemone	Isopyrum occidentale	Sandy soil among shrubs on coast.
30. Columbine	Aquilegia truncata	Coast and interior mountains. Frequent. Orange or yellow blossoms tinged with red.
31. Blue Columbine	Aquilegia caerulea	Sierras. Large blue and white blossoms.
32. Larkspurs	Delphinium simplex Delphinium variegatum Delphinium decorum var. nevadense Delphinium depauperatum	These larkspurs resemble each other and vary from a few inches in height in the high Sierras to two feet in the coast species. Flowers deep blue.
33. Tall Larkspurs	Delphinium californicum Delphinium scopulorum Delphinium trolliifolium	The tall larkspurs occur in patches in the Sierras and on the coast usually along creek bottoms. The flowers are of a lighter blue.
34. Red Larkspur	Delphinium nudicaule	Coast ranges.
35. Scarlet Larkspur	Delphinium cardinale	Mountains of Southern California.

White flowers may occasionally be found among the larkspurs. Many are favorites in the garden. They are all regarded as poisonous and many cattle die every year from eating them on the ranges.

36. Monkshood	Aconitum Fischeri	Coast and Sierras; by streams. Resembles larkspur but with a distinct hood to the blossom. Poisonous to stock.
37. Baneberry	Actæa spicata var. arguta	Coast ranges, not common. White or red berry which is considered poisonous.
38. Peony	Paeonia Brownii	A dwarf when compared with our cultivated species. Blossoms dull dark red. Sierras.
39. Crossosoma	Crossosoma californicum	Shrub. Cliffs, Catalina Island.
40.	Crossosoma Bigelovii	Shrub. Canyons east of San Bernardino.

BARBERRY FAMILY BERBERIDACEAE

41. Jepson's Barberry	Berberis dictyota	Rocky crevices, Solano county. Marysville Buttes.
42. California Barberry	Berberis pinnata	Hills, San Francisco south.
43. Oregon Grape	Berberis nervosa	Woods, Marin county north. Also in gardens.
44. Inside-out Flower or Flowering Fern	Vancouveria chrysantha var. parviflora	Shade, Coast ranges.
45. Western May-apple	Achlys triphylla	Woods, Mendocino county.

WATER-LILY FAMILY NYMPHACACEAE

46. Water Shield	Brasenia peltata	Flowers small, dull purple, petiole center of leaf—Clear Lake. Rootstock used as food by Indians.
47. Yellow Pond Lily	Nuphar advena	Numerous yellow stamens. Sloughs near Stockton.
48. Indian Pond Lily	Nuphar polysepalum	Flowers five inches, Santa Cruz and northward. Seeds used as food by Indians.

PITCHER PLANT FAMILY SARRACENIACEAE

49. Pitcher Plant	Darlingtonia Californica	Pitcher shaped leaves form a natural fly trap. Insects are enticed to enter and prevented from escaping by stiff hairs pointing downwards. Plant probably makes use of dead insects to nourish it. Mountain swamps vicinity Mt. Shasta and elsewhere. Not often seen.

POPPY FAMILY PAPAVERACEAE

50. California Poppy, Copa de oro	Eschscholtzia californica	The pride of all California occurs in many different varieties or subspecies throughout the coast and interior valleys. Flowers extremely variable in size and color. First collected in San Francisco in 1816.
51. Tiny-flowered California poppy	Eschscholtzia minutiflora	Desert and eastern side Sierras only. Flowers light yellow and about a quarter of an inch across.
52. Cream Cups	Platystemon californicus	Hills and plains. A favorite, becoming less abundant due to agricultural pursuits. Flowers have flattened filaments to the stamens.
53. False Cream Cups	Platystigma californicum	Similar to the Cream Cups but with flattened stigmas. San Francisco peninsula and south. Flowers from base of plant.
54.	Platystigma lineare	Flowers on branches. San Francisco, Clear Lake.
55. Matilija Poppy	Romneya Coulteri	Almost shrubby; large white flowers. Borders of streams Santa Barbara to San Diego.

56. Prickly Poppy	Argemone hispida	Leaves thistle-like; flowers large, white; Eastern Sierras especially burnt over sagebrush areas. Handsome.
57. Desert Poppy	Arctomecon californicum	A magnificent large white flower. Southeastern deserts of State only.
58. Tree Poppy Bush Poppy	Dendromecon rigidum	Shrubby; flowers golden yellow. Coast ranges and Sierras.
59.	Canbya candida	An inch high. Flowers white, minute. Head of Mohave River, San Bernardino county.
60. Western Poppy	Papaver californicum	Milky juice; flowers red with green spots. Chiefly in Southern California.
61. Wind Poppy	Papaver heterophyllum	A graceful plant with slender-stalked flowers, brick red. Dry soils middle California south. Getting scarce in bay region.
62. Blood Drops	Papaver heterophyllum var. crassifolium	Flowers more numerous and smaller. Interior fields.

FUMITORY FAMILY FUMARIACEAE

63. Dutchmans Breeches	Dicentra chrysantha	Yellow two-spurred flowers. High dry ridges of inner coast ranges. Not common.
64. Bleeding Heart	Dicentra formosa	Rose-purple, crested. Shady woods Marin county northward.
65. Ear-Drop	Dicentra pauciflora	White, tinged with rose. Scott mountains near snow.
66. Steers Head	Dicentra uniflora	High Sierras. Not common. Small plant, usually only one-flowered. Flesh-color. June, near snow.
67. Fumitory	Corydalis Caseana	One spurred flower. Whitish with lavender tips. Shady ravines Sierras. Not common.
68.	Corydalis Bidwelliae	Near Chico.

MUSTARD FAMILY CRUCIFERAE

69.	Platyspermum scapigerum	Interesting thin flat seed pods. Sierra county foothills.
70. Small Alyssum	Alyssum calcinum	Escape from gardens.
71. Sweet Alyssum	Alyssum maritimum	Escape from gardens.
72. Rockets	Draba stenoloba	4″-12″. Flowers yellow. High Sierras.
73. Rockets	Draba cuneifolia	3″-6″. Flowers white. Los Angeles.

74. Rockets	Draba aureola	2"-4". Flowers bright yellow. Sierra county and vicinity.
75. Rockets	Draba corrugata	San Bernardino Mts.
76. Rockets	Draba Lemmoni	Dwarf. High peaks—Sierras.
77. Rockets	Draba crassifolia	1"-5". Yosemite. 7000 ft. Yellow.
78. Rockets	Draba Douglasii	Dwarf. White, Sierra Valley.
79. Rockets	Draba eurycarpa	Dwarf. High Sierras.
80. Rockets	Draba alpina and vars.	Dwarfs. Flowers large, yellow. High Sierras.
81. Milk-maids	Dentaria integrifolia and var.	Flowers white. Coast ranges.
82. Toothwort	Dentaria cardiophylla	Vaca mountains.
83. Toothwort	Dentaria tenella	Indian Valley, Plumas Co.
84. Bitter Cress	Cardamine oligosperma	Coast ranges under oaks.
85. Bitter Cress	Cardamine Gambellii	Near Santa Barbara.
86. Bitter Cress	Cardamine Breweri	Sierras and Humboldt Co.
87. Bitter Cress	Cardamine hirsuta	Plumas Co.
88. Bitter Cress	Cardamine bellidifolia	Lassen Peak.
89. Alkali Rock Cress	Arabis longirostris	Deserts N. E. California.
90. Tower Mustard	Arabis glabra	Dull white throughout. California.
91. Hairy Rock Cress	Arabis hirsuta	Northern California.
92. Coast Rock Cress	Arabis blepharophylla	Large fragrant purple flowers. Coast hills. San Francisco Co.—Monterey.
93. Brewers Rock Cress	Arabis Breweri	Dwarf; rose colored. Rocky summits. Mt. Diablo. Mt. Hamilton, etc.
94.	Arabis arcuata	1-2 ft. Santa Barbara to Eastern Sierras.
95.	Arabis virginica	Lower San Joaquin river banks.
96. Alpine Rock Cress	Arabis Lyalli	High Sierras.
	Arabis platysperma	High Sierras.
	Arabis repanda	Yosemite Valley.
97. Wall Cress	Arabis Thaliana	Introduced. Has spread over University botanical gardens as a weed.
98.	Arabis Holboellii	Sierras. Deep purple. Common.
98a. Hare's Ear Mustard	Conringia orientalis	Frequent in alfalfa seed. Plants not yet collected.
99. Jewel Flower	Streptanthus glandulosus	Common in mountains. Middle altitudes.
100.	Streptanthus polygaloides	Rare; dry magnesium soil, near Jacksonville on the Tuolumne.
101.	Streptanthus suffrutescens	Mountains. Coast ranges.
102.	Streptanthus orbiculatus	Summit Mt. Diablo. Also Sierras.
103.	Streptanthus Breweri	Mt. Diablo range.

104.	Streptanthus barbiger	St. Helena.
105.	Streptanthus niger	Tiburon, Marin Co.
106.	Streptanthus secundus	Near coast; Marin Co., north.
107.	Streptanthus hispidus	Summit Mt. Diablo. Southward.
108.	Streptanthus tortuosus	Common in Sierras, 4000 to 11,000 ft. altitude in dry sunny places.
109.	Streptanthus cordatus	High Sierras.
110.	Streptanthus heterophyllus	Pendent pods. Bushy hills, San Diego. Rare.
111. Wormseed Mustard	Erysimum cheiranthoides	Introduced. Placer Co.
111a. Mt. Wall Flower	Erysimum Menziesii	Sierras.
112. Western Wall Flower	Erysimum asperum	Common. Coast ranges and Sierras.
113. Coast Wall Flower	Erysimum capitatum	Vicinity of the ocean.
114. Wild Cabbage	Caulanthus procerus	Mt. Diablo region.
115. Wild Cabbage	Caulanthus Coulteri	Southern California.
116. Wild Cabbage	Caulanthus pilosus	Probably extending into N. E. California from Nevada.
117. Wild Cabbage	Caulanthus crassicaulis	Foothills, Eastern Sierras, sometimes used as food.
118.	Thelypodium lasiophyllum and vars.	Frequent in Coast ranges also in Sierras.
119.	Thelypodium Greenei	Mt. Diablo region.
120.	Thelypodium flavescens	Mt. Diablo region.
121.	Thelypodium Cooperi	Mojave River region.
122.	Thelypodium integrifolium	Eastern Sierras.
123.	Thelypodium brachycarpum	Mono Lake region.
124.	Thelypodium saggittatum	Probably extending into northeastern California from Nevada.
125.	Thelypodium Nuttallii	
126.	Thelypodium lacinatum	
127.	Thelypodium ambiguum	Probably extending into northeastern California from Nevada.
128.	Thelypodium longifolium	Probably extending into northeastern California from Nevada.
129. Golden Prince's Plume	Stanleya pinnatifida	Stout conspicuous perennials. Desert regions, Southern California.
130.	Stanleya viridiflora	Probably extending into N. E. California from Nevada.
131. Black Mustard	Brassica nigra	Introduced weed. As common 40 years ago as now. Valley grain fields principally. Seeds more pungent than the common mustard of commerce, Brassica alba.
131a. Indian Mustard	Brassica juncea	Common as a weed in alfalfa seed.

132. Wild Mustard or Turnip	Brassica campestris	Introduced weed. Coast region and elsewhere.
133. Charlock	Brassica arvensis	Introduced weed. Grainfields.
134. Winter Cress	Barbarea vulgaris and vars.	Marshes and damp places. Coast hills and Sierras.
135. Hedge Mustard	Sisymbrium officinale	Introduced weed. Common in bay region.
136.	Sisymbrium acutangulum	Introduced near coast towns.
137.	Sisymbrium reflexum	Along coast.
138.	Sisymbrium junceum	Probably N. E. California.
139. Green Tansy Mustard	Sisymbrium incisum and vars.	Common in Sierras. Dry soils.
140. Tansy Mustard	Sisymbrium pinnatum	Dry soils, Monterey southward; also common in valleys East Sierras.
141. Tumbling Mustard	Sisymbrium altissimum	Introduced weed along railroads, common in N. E. California in seed alfalfa.
142. Sea Rocket	Cakile americana	Ocean and Bay beaches.
143.	Smelowskia calycina	Dwarf alpine perennials Northern Sierras.
144. Water Cress	Nasturtium officinale	Introduced: creeks and springs. Used for garnishing principally.
145. Horse Radish	Nasturtium armoriacia	Introduced. Rarely blossoms; weed in some parts; difficult to eradicate. The root is used by Japanese art stores and sprouted in miniature vase gardens. A Condiment.
146. Western Yellow Cress	Nasturtium curvisiliqua	Marshy places throughout the State.
147. Marsh Yellow Cress	Nasturtium palustris	Sacramento River.
147a.	Nasturtium obtusum	San Luis Obispo; Kern River.
148. Bladder-Pod	Vesicaria montana	Yreka; Mt. Lassen.
149. Awlwort	Subularia aquatica	High Sierras. Pools.
150.	Tropidocarpum gracile	Low hills inner coast ranges.
	Tropidocarpum dubium	Antioch and south.
151.	Tropidocarpum capparideum	Alkali soil, San Joaquin River region.
152. Shepherds Purse	Capsella bursa-pastoris	Introduced weed. Troublesome in newly sown alfalfa field.
153.	Capsella procumbens	Alkali soil, Bay and Valley south.
154.	Lyrocarpa Coulteri	Southern California.
155.	Lyrocarpa Palmeri	Tantillas Mountains below San Diego.
156. Lace-Pod	Thysanocarpus elegans	North Coast ranges. Sierra foothills. Striking, ornamental pods.
157. Fringe Pod	Thysanocarpus curvipes	Common, open hill country.

158.	Thysanocarpus radians	Low hills, Central California.
159.	Thysanocarpus emarginatus	Mt. Diablo region.
160.	Thysanocarpus erectus	Guadalupe Island.
161.	Athysanus pusillus	Gravelly hills, coast range and Sierra foothills.
162.	Athysanus unilateralis	Livermore Valley and south.
163. Pennycress	Thalaspi arvense	Introduced weed. Abundant at Adin, Modoc Co.
164. Alpine Pennycress	Thalaspi alpestre	Yreka and Plumas Co.
165. Common Pepper-grass.	Lepidium nitidum	Common everywhere.
166. Tall Pepper-grass	Lepidium medium	Coast ranges.
167. Wayside Pepper-grass	Lipidium bipinnatifidum	Throughout California.
168. Long Winged Pepper-grass	Lepidium latipes	Pools of alkali flats. General.
169. Alkali Winged Pepper-grass	Lepidium dictyotum	Alkali soils, Livermore Valley south, also Eastern Sierras.
170.	Lepidium oxycarpum	Borders of salt marshes Middle California.
171.	Lepidium strictum	Lower San Joaquin region.
172.	Lepidium Menziesii	Santa Barbara to Los Angeles.
173.	Lepidium lasiocarpum	Desert regions. Santa Barbara, eastward.
174.	Lepidium flavum	Mohave River region.
175.	Lepidium intermedium	Eastern Sierras.
176.	Lepidium Fremontii	A conspicuous fragrant perennial shrub—Desert regions. Mohave and Eastern Sierras.
177.	Lepidium montanum	Shasta River.
178.	Lepidium campestre	Perhaps introduced from Oregon.
179. Hoary Cress	Lepidium Draba	Escape from gardens.
180. Dwarf Cress	Lepidium nanum	Probably N. E. California.
181. False Flax	Camelina sativa	Introduced weed in grain-fields.
182. Twin Pod	Physaria didymocarpa	A striking plant with gray leaves, large yellow flowers and inflated pods. Frequent in mountains Eastern Sierra.
183. Wart Cress	Coronopus didymus	Introduced weed, Solano county.
184. Swine Cress	Coronopus Ruelli	Introduced weed, San Francisco.
185.	Biscutella californica	San Bernardino Mts.
186. Wild Radish	Raphanus Raphanistrum	Weed, waste places and grain fields.
187. Garden Radish	Raphanus sativus	Escaped and now abundant as a weed.
187a. Rocket Salad	Eruca sativa	Introduced. Alfalfa fields San Luis Obispo Co.

CAPER FAMILY CAPPARIDACEAE

188. Globe Pod	Isomeris arborea	Shrub 3-5 ft. high, unpleasant odor; large yellow flowers and large inflated pod. Dry soils, Southern California.
189. Clammy Weed	Polanisia trachysperma	Probably N. E. California.
190. Bee Plant	Cleome lutea	Probably N. E. California.
191.	Cleome platycarpa	Northern California.
192. Little Bee Plant	Cleomella obtusifolia	Mojave River region.
193.	Cleomella longipes	Probably N. E. California.
194.	Cleomella parviflora	Mojava River region.
195. Stink Weed	Wislizenia refracta	Alkali soils, San Joaquin Valley.

MIGNONETTE FAMILY RESEDACEAE

196. Desert Mignonette	Oligomeris subulata	Desert regions, Southern California.
197. Common Mignonette	Reseda odorata	Occasionally escaped from gardens.
198. White Mignonette	Reseda alba	Escape from gardens.

VIOLET FAMILY VIOLACEAE

199. Dog Violet	Viola canina and vars.	Coast and Sierras. Violet, turning to red purple.
200. Western Heart's Ease	Viola ocellata	Shady woods coast ranges. White or yellow and violet-purple.
201. Mountain Violet	Viola purpurea and vars.	Coast ranges and Sierras. Abundant. Yellow and brown.
202. Yellow Pansy or Johnny Jump-Up	Viola pedunculata	Coast ranges. Flowers large golden yellow and dark brown, purple veined.
203. Wood Violet	Viola sarmentosa	Redwood belt. Coast ranges. Light yellow.
204. Moisture-loving Violet	Viola glabella	Wet places in woods. Coast ranges and Sierras. Bright yellow, purple-veined.
205. Cut-leaf Violet	Viola Douglasii	Open hillsides, Coast ranges and Sierras. Wide distribution. Leaves much dissected. Flowers large, orange-yellow and brownish-purple.
206. Pine Violet	Viola lobata and vars.	Coast ranges north of San Francisco. Leaves lobed, yellow and purple.
207. Small White Violet	Viola blanda	Wet places, Sierra. Not common. White with purple veins.
208.	Viola cucullata	Eastern Sierras. Deep pale violet to purple.
209. English Violet	Viola odorata	Occasional as an escape.

210. Garden Pansey	Viola tricolor	Occasional as an escape.
211. Nuttall's Violet	Viola Nuttallii	Northern California. Humboldt to Modoc Co. Large, yellow, brown and purple.
212. Hall's Violet	Viola Hallii	Humboldt Co. Seldom collected. Yellow and deep violet. Leaves 3-parted.
213. Beckwith's Violet	Viola Beckwithii	Central and eastern Sierras, often in open places among sagebrush. Leaves much dissected. Purple and yellow.
214. Shelton's Violet	Viola Sheltonii	Similar to last. Yellow veined with purple. Middle to Sierras only. Rare.
215.	Viola cuneata	Coast ranges — Humboldt Co. North—Rare. Deep purple with white.

MILKWORT FAMILY POLYGALACEAE

216. Coast Milkwort	Polygala Californica	Brush covered slopes, coast ranges; flower resembles that of a legume-rose-purple.
217. Sierra Milkwort	Polygala cornuta	Pine forests, Sierras. Greenish white.
218. Crimson Beak	Krameria parviflora	Spiny branched shrub of the deserts. San Diego, eastward. Purple.

ALKALI—HEATH FAMILY FRANKENIACEAE

219. Yerba Rheuma or alkali heath	Frankenia grandiflora	Common in salt marshes and alkali plains. Small pinkish.

PINK FAMILY CARYOPHYLLACEAE

220. Cow Cockle	Vaccaria vulgaris	Introduced weed in grain fields—handsome pinkish-red. Probably poisonous to stock.
221. Catch-fly	Silene multinervia	Introduced. Origin unknown. Mt. Tamalpais, also Southern California. Small purplish.
222. Sleepy Catch-fly	Silene antirrhina	Throughout State but never abundant. Small, pink or red.
223.	Silene Gallica	Introduced weed. Common everywhere. Troublesome in pastures.
224.	Silene dichotoma	Introduced weed. Berkeley. White flowers.
225. Bladder Campion	Silene vulgaris	Introduced in Vallejo. White.
226. Indian Pink	Silene Californica	Open woods, coast ranges and Sierras. Scarlet.

227.		Silene verecunda	San Francisco southward. Large, rose-color.
228.		Silene campanulata	Mendocino Co. Flesh color.
229.		Silene Lyalli	Sierra Valley. Brownish-purple.
230.		Silene Menziesii	Eastern Sierras. White.
231.		Silene Hookeri	Northern counties. Pale pink.
232.		Silene Lemmoni	Sierra Valley. Rose color.
233.		Silene occidentalis	Plumas Co. Deep purple.
234.		Silene montana	Sierra Valley. Rose color.
235.		Silene Palmeri	San Diego Co. Purplish.
236.		Silene pectinata	Eastern Sierras. Dark rose-color.
237.		Silene incompta	Yosemite Valley. Light rose color.
238.		Silene Bridgesii	Yosemite Valley. White.
239.		Silene Douglasii	Sierras; frequent. Rose color to white.
240.		Silene campanulata	Humboldt Co. White.
241.		Silene Grayi	Mt. Shasta near snow. Rose color.
242.	Mouse ear Chickweed	Cerastium viscosum	Introduced. A bad weed in lawns.
243.	Field Chickweed	Cerastium arvense	S. F. Peninsula.
244.	Common Chickweed	Stellaria media	Introduced weed. Common; liked by canaries. Troublesome in lawns.
245.		Stellaria nitens	Grassy hillsides. Solano county south. Slender plant, flowers minute, white.
246.	Seashore Chickweed	Stellaria littoralis	Marshy places, coast points.
247.		Stellaria umbellata	Yosemite.
248.		Stellaria longipes	Sierras.
249.		Stellaria borealis	Sierras.
250.		Stellaria Jamesii	Sierras.
251.	Sandwort	Arenaria Californica	Dry rocky knolls, coast ranges.
252.		Arenaria Douglasii	Sterile soil coast and Sierras.
253.		Arenaria paludicola	Swamps along coast. Rare.
254.		Arenaria macrophylla	Shady slopes. Mountains of interior coast ranges.
255.		Arenaria congesta and vars.	Narrow prickly leaves. Sierras.
255a.		Arenaria verna var. hirta	Mt. Lassen.
255b.		Arenaria capillaris	High Sierras.
256.		Arenaria pungens	High Sierras.
257.	Pearl wort	Sagina occidentalis	Salt marshes. General.
258.		Sagina crassicaulis	Beaches along coast.
259.		Sagina Linnaei	Webber Lake, Sierras.
260.		Sagina apetala	Introduced. North Berkeley.

261. Corn Spurrey	Spergula arvensis	Introduced weed; graceful plant; annual; common in fields and orchards.
262. Sand Spurrey	Tissa macrotheca and vars.	Salt marshes, general.
263. Red Sand Spurrey	Tissa rubra and vars.	Introduced. Roadsides, valleys.
264.	Tissa Clevelandi	Sandy soil. Bay region and elsewhere.
265. Salt Sand Spurrey	Tissa salina and vars.	Salt marshes and alkaline plains, general.
266.	Polycarpon depressum	Monterey and Santa Cruz Co. and elsewhere.
267.	Polycarpon tetraphyllum	Introduced. Napa Valley along railroads.
268.	Loeflingia squarrosa	San Joaquin, south.
269.	Herniaria cinerea	Introduced. Foothills San Joaquin region.
270. Sand Mat	Pentacaena ramosissima	Sand hills along coast. Dense mats. "Stickery."
271. Whitlow-wort	Paronychia chilensis	Introduced from South America. Hilltops. Western S. F.
272.	Achyronychia Cooperi	Deserts Southern California.
273. Alpine Campion	Lychnis californica	Alpine. High Sierras.
274. Bouncing Bet	Saponaria officinalis	Escape from gardens.

PURSLANE FAMILY PORTULACACEAE

275. Common Purslane or "Pussley"	Portulaca oleracea	Introduced from Europe. Weed in gardens.
276.	Portulaca pilosa	Reported from Soda Springs, Upper Sacramento.
277.	Portulaca grandiflora	Escape from gardens. Large flowers of various colors.
278. Red Maids	Calandrinia caulescens var. Menziesii	Common in pastures and orchards, a favorite spring wild flower.
279.	Calandrinia Breweri	Mt. Tamalpais and south.
280.	Calandrinia maritima	San Diego. Little known. Red, large and showy.
281.	Calandrinia pygmea	Alpine, among rocks. Summits of High Sierras. Striking, red.
281a.	Calandrinia triphylla	
282.	Calandrinia nevadensis	Central and Northern Sierras. White.
283.	Calandrinia Leana	Mt. Shasta and northern counties. Red.
284. Miner's Lettuce	Montia perfoliata	Common, pastures and orchards. General. Companion of "Red Maids." Several varieties. Leaves variable.
285.	Montia Siberica	Wet places along the coast, Marin Co. north.

286.	Montia gypsophiloides	North slopes of coast ranges. Mt. Diablo north.
287.	Montia Spathulata	High gravelly knolls, Bay region—north.
288.	Montia parvifolia	North coast ranges and Sierras. Bulblets in the leaf axils.
289.	Montia diffusa	Woods of Mill Valley, north.
290. Water Montia	Montia fontana	Wet places of Marin Co. northward.
291.	Montia chamissonis	High Sierras. Bulbiferous.
292.	Montia linearis	Northern counties.
293. Pussy Paws.	Calyptridum Spraguea umbellata and vars.	A common plant in the Yosemite Valley and elsewhere in the Sierras at high and low elevations. Light rose color.
294.	Calyptridum Spraguea quadripetalum	Sonoma Co. north.
295.	Calyptridum Spraguea monandum	San Diego east.
296.	Calyptridum Spraguea roseum	Sierra valley.

The species of Montia, Calyptridum, Calandrinia, Spraguea Claytonia and Oreobroma are variously treated by the different authors, causing much confusion in the literature. Probably many more species than here listed.

297. Bitter Root	Lewisia rediviva and vars.	High peaks of coast ranges —rare. Frequent in eastern Sierras. Large handsome rose colored flowers often two in. across seemingly coming from the sterile rocky soil. Stout roots formerly used by Indians for food. Leafage very scanty. State flower of Montana.
298. Spring Beauty	Claytonia lanceolata	Subalpine and alpine Sierras.
299.	Claytonia umbellata	Probably N.E. Calif. in desert mountains.
300.	Claytonia nubigena	Flowers large. Mt. Diablo and Marin Co.

CARPET WEED FAMILY AIZOACEAE (FICOIDEAE)

301. Carpet Weed	Mollugo verticillata	Introduced Weed. Bay region south.
302. West Indian Weed	Cypselea humifusa	Introduced weed from West Indies. Lower San Joaquin.
303. Alkali Purslane	Sesuvium sessile	Low alkali lands. San Joaquin.
304. Sea Spinach	Tetragonia expansa	Beaches, Bay region.

305. Sea Fig	Mesembryanthemum aequilaterale	Dunes and cliffs of Bay region. Fruits sometimes eaten. Commonly used to cover unsightly banks.
305a. Knawel	Scleranthus annuus	Introduced, El Dorado Co.
305b. Alkali Purslane	Trianthema portulacastrum	Introduced, San Mateo Co.

TAMARISK FAMILY TAMARISCINEAE

306 Tamarisks	Tamarix spp.	Introduced shrubs suitable for windbreaks in deserts; occasionally seen as escapes. Southern California.
307. Candlewood	Fouquiera splendens	Striking desert shrub. Cactaceous in aspect, leaves at summit of stems only; branches grooved, ridged and spiny; terminal spikes of brilliant crimson flowers. Southern California, San Diego, Imperial and east.

WATERWORT FAMILY ELATINACEAE

308. Waterwort	Elatine brachysperma	Mats 2-3 inches across. Margins of pools. Walnut Creek, Bay region to coast. Seldom collected.
309.	Elatine californica	Suisun and N. Sierras. Seldom collected.
310.	Bergia texana	Shady banks of Interior Basin.

ST. JOHN'S WORT FAMILY HYPERICACEAE

311. Mountain St. John's Wort	Hypericum Scouleri	General in the Sierras and elsewhere.
312. Dwarf St. John's Wort	Hypericum concinnum	Interior Basin and foothills.
313. False Pimpernel	Hypericum anagalloides	Moist places; general.
314. Weedy St. John's Wort	Hypericum perforatum	Tall perennial species, entering Calif. by way of the N. W. P. R. R. A bad European weed. One of Oregon's worst pasture pests. Called "Goat weed" there as only goats will eat it. Difficult to eradicate, spreads rapidly. Used in London for fuel on the eve of St. John. Medicinal, dyes wool yellow.
315.	Hypericum mutilum	Banks of the Sacramento near Rio Vista.

MALLOW FAMILY MALVACEAE

316. Tree Mallow	Lavatera assurgentiflora	Introduced and commonly used as a windbreak in vegetable gardens near the coast.
317. Rose Mallow	Hibiscus Californicus	Marshy places along the Sacramento and San Joaquin. Tall, 3 to 7 ft., very large, deep crimson and white flowers.
317a.	Hibiscus denudatus	S. E. California.
318. Dwarf Mallow or "Cheeses"	Malva rotundifolia	Introduced — old gardens and waste places. Medicinal-mucilaginous, boiled with meat in Egypt.
319. Large-flowered Mallow	Malva borealis	Introduced weed from Europe. Waste places. Common on coast.
320. Small-flowered Mallow	Malva parviflora	Introduced. Very common in Bay region.
321. Wild Hollyhock	Sidalcea malvaeflora	Leaves cleft, small and large, pinkish flowers on the same plant. General, abundant, perennial.
322.	Sidalcea diploscypha and var.	Sacramento and coast range valleys. Annual.
323.	Sidalcea Hartwegii	Coast ranges and Sierra foothills.
324.	Sidalcea sulcata	Northern Sierra foothills.
325.	Sidalcea Oregana	Sonoma County north.
326.	Sidalcea malachroides	Seaboard species, leaves not cleft or divided.
327.	Sidalcea calycosa	Pt. Reyes. Rarely collected.
328.	Sidalcea glaucescens	Frequent in Sierra foothills. General.
329.	Sidalcea spicata	Forming striking masses of pink in meadows of the Sierras at moderate elevations.

Nearly all the known species are found within the boundaries of the State. In addition to the above, some twenty species have been described, many of which may prove to be synonyms when the peculiar and variable features of the genus are better understood.

330. False Mallow	Malvastrum exile	Low plant, mostly in the San Joaquin Valley and south. Two kinds of blossoms, small white or rose-colored ones and larger rose-colored ones.
331.	Malvastrum Fremontii	Diablo range south, fragrant like roses, white woolly plant, leaves lobed.
332.	Malvastrum arcuatum	Shrub, stream banks, Santa Clara Valley, densely woolly leaves only slightly lobed.

333.		Malvastrum fasciculatum	Shrub. Dry inner south coast hills. Slender wand-like branches.
334.		Malvastrum splendidum	Large shrub or tree. Mountains Los Angeles to Santa Barbara.
335.		Malvastrum marrubioides	Milleston on the San Joaquin.
336.		Malvastrum rotundifolium	Sand hills S. E. deserts.
337.		Malvastrum Palmeri	San Luis Obispo County.
338.	Globe Mallow	Sphaeralcea Munroana	Common eastern base of Sierras.
339.		Sphaeralcea angustifolia	S. E. California.
340.		Sphaeralcea Lindheimeri	Central California.
341.		Sphaeralcea angustifolia	Mojave desert.
342.		Sphaeralcea Emoryi	A conspicuous plant, E. of Sierras. Crimson raceme of flowers.
343.		Sphaeralcea Coulteri	S. E. California. Carpels with striking horizontal projection.

Probably half a dozen more species. The genus Sphaeralcea looks like Malvastrum, the main difference being that the latter has only one ovule in the cells of the ovary while the former has two.

344.	Alkali Mallow	Sida hederacea	Subsaline soils. Interior Basin. Troublesome as a weed. Acts like morning glory.
345.	Flowering Maple	Abutilon crispum	Both south of San Diego.
346.		Abutilon Newberryi	Small yellow flowers.
347.		Abutilum Thurberi	Southern coast ranges.
348.	Modiola	Modiola multifida	Introduced, alfalfa fields, Interior Basin.
349.	Hollyhock	Althaea rosea	Escape from gardens.
350.	Marshmallow	Althaea officinalis	Introduced.
351.	Fremontia, Mountain Leatherwood, False Slippery Elms, Velvet Flower	Fremontia Californica	

Western side southern Sierras, rare in Bay region. A shrub of unusual character and distinctiveness, truly Californian. We should cherish and preserve this handsome shrub with its large, soft, velvety yellow blossoms. Named after its discoverer, General Fremont. For this reason the name Fremontia is much to be preferred.

LINDEN FAMILY TILIACEAE

352.	Lindens or Basswoods.	Tilia sp.	Useful, ornamental trees in cultivation. Flowers valuable for bees.

FLAX FAMILY LINACEAE

353.	Blue Flax	Linum Lewisii	Perennial, common in Sierras and occasional in coast ranges.
354.	Golden Flax	Linum adenophyllum	North coast ranges. Yellow.

355. Pink Flax	Linum spergulinum	North coast ranges. Pinkish white.
356. Nodding Flax	Linum micranthum	Sierras mostly.
357. California Flax	Linum Californicum	Mt. Diablo and north. White or pink.
358. Purple Flax	Linum congestum	Marin County. Rose-purple.
359. Brewers Flax	Linum Breweri	Mt. Diablo. . Yellow.
360. Mountain Flax	Linum digynum	Yosemite Valley and elsewhere. Yellow.
361. Commercial Flax	Linum usitatissimum	The flax of commerce—escape.

CREOSOTE-BUSH FAMILY ZYGOPHYLLACEAE

362. Creosote-bush	Covillea Larrea divaricata	The common evergreen shrub of desert regions. Covers large areas in Kern Co. and East to Nevada. Bright yellow. Leaves sticky and strong scented. Indians made glue from it for arrows.
363. Puncture weed	Tribulus terrestris	Southern California. Prostrate plant. Seeds like three-pointed tacks, strong enough to puncture tires.
364.	Fagonia californica	Hot deserts, S. California.

GERANIUM FAMILY GERANIACEAE

365. Cranesbill	Geranium Carolinianum	Introduced, general and common in the Bay region. Light pink.
366.	Geranium dissectum	Introduced. General in Bay region. Rose-purple.
367.	Geranium Richardsonii	Eastern Sierras. Common white to purple.
368.	Geranium incisum	Yosemite Valley and north. Deep purple.
369.	Geranium pilosum	Introduced from Australia. Bay region. Rare.
370. Red-stemmed Filaree, Pin-clover, Pin-grass, Storksbill, Clocks.	Erodium cicutarium	Introduced in fleece of Mission sheep from Spain. Now wide spread from coast to Nevada and Arizona. Red. Excellent forage.
371.	Erodium macrophyllum and var.	Interior Basin. White.
373. Musk Filaree	Erodium moschatum	Coast and valleys. Musky odor. Rose-purple.
374.	Erodium botrys	Marin County north. Deep violet.
375. Texas Filaree	Erodium Texanum	Sandy deserts, extreme South.
376. Meadow Foam	Floerkea Douglasii	Near shallow water in coast ranges and elsewhere. Showy, white, yellow or rose-color.

377. Yellow Sorrel	Oxalis corniculata and vars.	General, weed in lawns and gardens; troublesome root-stocks; leaves turn reddish and have acid taste; flowers yellow.
378. Redwood Sorrel	Oxalis oregana	Associated with the redwoods; pink, white or rose-color; large.

CITRUS FAMILY RUTACEAE

379. Hop-tree	Ptelea Baldwinii var.	Mt. Diablo north and south in certain localities. Shrub or tree; interesting seed surrounded by a wing.
380.	Thamnosma montanum	S. E. deserts. Low, somewhat spiny shrub; soon deciduous; purple and yellow; not common. Strongly scented.
381.	Cneoridium dumosum	San Diego region. A low heavy scented shrub; flowers white.

To this family belong the citrus fruits so extensively grown in Southern California and certain sections of the northern counties.

STAFF-TREE FAMILY CELASTRACEAE

382. Burning Bush	Euonymus occidentalis	Slender, 4-angled green-branched shrub. Santa Cruz mountains north. Flowers dark brown.
383.	Pachystima Myrsinites	Evergreen shrub. Yuba river north. Flowers small, green.

BUCKTHORN FAMILY RHAMNACEAE

384. California jujube	Zizyphus Parryi	Shrub with leafy spines; gravelly ravines; southern California; edible; lemon-yellow; fruits about ½ inch long.
385.	Karwinskia Humboldtiana	Smooth shrub perhaps in extreme south adjacent to Mexico; a small fleshy fruit.
386. Coffee Berry or Pigeon Berry	Rhamnus Californica and vars.	General; leaves evergreen; shrub; generally 2-seeded; blackish-purple berry.
387. Cascara Sagrada	Rhamnus Purshiana	Northern coast counties mostly; shrub or small tree; medicinal bark; leaves deciduous; 3-seeded black berry.
388.	Rhamnus crocea and vars.	Bay region southward near the coast; low shrub bright red berry.

389.	Adolphia Californica	Small branching spiny shrub with greenish flowers. Soledad; Chollas Valley, near San Diego.
390. Snow-brush	Ceanothus velutinus and vars.	Large shrub; leaves thick, shiny and sticky above, pale beneath. White, without horns. Northern Sierras. This and the next eight have alternate leaves.
391.	Ceanothus integerrimus	Tall, slender shrub; leaves deep-green above, pale beneath; Santa Cruz Mountains.
392. California Lilac or Blue Blossoms	Ceanothus thyrsiflorus	Tall shrub or tree. A beautiful sight with its light blue, fragrant blossoms. Bay region north.
393. Parry's Lilac	Ceanothus Parryi	Spreading shrub; leaves rolled; blue. Attractive in bloom only. Local. Napa Valley hills.
394.	Ceanothus foliosus	Dense, low, spreading shrub. Clusters of blue blossoms; spherical; crested fruit; common. Coast ranges, Bay region north.
395. 396.	Ceanothus dentatus Ceanothus papillosus	Dense low shrubs with reddish-brown branchlets and the young twigs downy; leaves waxen above, downy beneath; blue. Santa Cruz Mountains.
397. 398.	Ceanothus sorediatus Ceonothus incanus	Rigid shrubs with spur-like branches. Fruit sticky and warty. 397 with bluish flowers and common in large patches on north slopes of coast ranges. 398 with white velvety blossoms.
399. Buck Brush.	Ceanothus cuneatus	Rigid shrubs with gray bark and short stout branchlets; leaves opposite in this and the next four; flowers white; fruit with 3 short erect horns; very abundant, forming dense thickets in higher coast ranges and Sierras. Chaparral in part.
400. 401. 402.	Ceanothus rigidus Ceanothus Jepsonii Ceanothus purpurea	Erect shrubs with rigid branches and more or less spiny-toothed leaves. Flowers blue or whitish; musky odor. Middle coast ranges.

403. Squaw carpet Mahala mats	Ceanothus prostratus and var.	A well known plant to Sierra campers by its holly-like leaves, forming a mat beneath the yellow pines, also on the coast.
404. Sierra Brush	Ceanothus cordulatus	A spiny shrub with gray branches and white flowers. Frequent in the Sierras, forming dense thickets.

There are several additional species, somewhat local in their distribution.

GRAPE-VINE FAMILY VITACEAE

405. California Wild Grape	Vitis Californica	General along streams, climbing high up into trees. Very fragrant in blossom.

BUCKEYE FAMILY SAPINDACEAE

406. Buckeye — Aesculus Californica

Shrub or tree. Known by its large, beautiful pyramidal clusters of white blossoms at the ends of the branches and the polished, mahogany colored seeds in large green pear-shaped pods. Seeds unpalatable and unwholesome. General throughout middle California, in the foothills and coast regions.

MAPLE FAMILY ACERACEAE

407. Box elder or Soft Maple	Acer negundo var.	A common tree along streams in the coast ranges and valleys of the interior; general; leaves variable in form, but more or less lobed.
408. Large-leaved Maple	Acer macrophyllum	A useful and beautiful tree of the coast ranges and Sierras.
409. Vine Maple	Acer circinatum	A small shrub or tree with drooping branches which take root and form thickets. Northern California in pine forests. Leaves 3 to 5 inches broad and deeply 7 to 9 lobed.
410. Sierra Maple	Acer glabrum	Usually a shrub and recognized among the shrubbery along creeks in the Sierras by its leaves.
411. Bladder Nut	Staphylea Bolanderi	Erect shrub with leaves of 3 leaflets, 1 to 2 inches long; fruit bladdery and keeled with small round seeds. Shasta Co.
412.	Glossopetalon Nevadense	A rare shrub on barren hillsides in Washoe Co., Nevada, forming patches not over 1 foot high. Slender spiny branches, small simple, entire leaves and not at all like the maple family. Flowers white and obscure. May extend over border.

SUMACH OR POISON OAK FAMILY—ANACARDIACEAE

413. Poison Oak — Rhus diversiloba

Commonly a shrub, but quite frequently climbing up trees like ivy; leaves consisting of three leaflets which are three-lobed, coarsely toothed. Clusters of white flowers appearing with the leaves. In the autumn the leaves turn red.

Causes eruption on the skin accompanied by severe smarting and itching. Why it affects some people and not others is interesting. General, but coast ranges mostly.

414. Evergreen shrub	Rhus integrifolia	Simple leaves, rose-colored flowers, red fruits. Indians made acid cooling drink from fruits. Bark exudes a gum. Southern California.
415. Laurel Sumach	Rhus laurina	Large evergreen shrub, yellowish flowers. Seeds said to yield a pungent oil. Santa Barbara to San Diego.
416. Squaw Bush Indian Lemonade	Rhus trilobata var.	Aromatic shrub; greenish flowers precede the leaves; fruit red and acid, and eaten by Indians; twigs used in basketry. Throughout California, but not common.

LEGUME FAMILY LEGUMINOSAE

One of the largest and most important families of the vegetable kingdom from an economic standpoint. The soil in which they grow is usually increased in fertility, owing to their utilizing the abundant nitrogen in the air through their tuberculed root system.

417. Golden Pea False Lupine	Thermopsis macrophylla and vars.	Perennial with rootstocks about 1 foot high. Leaves of 3 petioled leaflets at first distinctly whitish due to dense silky hairs, later nearly smooth; flowers large, yellow; pod 2 in. long and silky-villous. Not liked by stock. Coast ranges.
418. Mountain Pea	Thermopsis montana	In patches, similar to 417 and common in adjacent Nevada and may be in N. E. California.
419. Pickeringia or Spiny Chaparral	Xylothermia montana	Spiny branched shrub with small leaves; large solitary rose-purple flowers and pod about 2 inches long. Ridges, coast ranges and south and elsewhere.

LUPINES LUPINUS

420. Lupines.

There are at least 100 species of lupines in the United States with most of them west of the Rocky Mountains, and perhaps fifty species in California. They are mostly annuals or perennials with a few species herbaceous or even woody. The leaves consist of from four to fifteen leaflets radiating from the end of the petiole.

The flowers are usually showy, ranging in color through many shades of blue and purple to yellows, pinks and whites. Individual florets show the characteristic corolla parts with standard, wings and keel, as seen in the garden or sweet pea. The inflorescence is in terminal sprays or series of whorls varying greatly in size, number of florets and density. The seeds are in pods.

None of the lupines interferes seriously with the cultural operations of the farmer, and the foliage of many is much sought after by stock, especially sheep, providing nutritious forage. The ripe seeds of many of them have been known to cause serious losses of stock by poisoning, causing a disease termed by veterinarians, lupinosis.

Europeans use some of the species for green manuring. The seeds of the European species are utilized for food for stock and humans, but only after the poisonous principle has been removed by boiling.

Many of the Californian species have been introduced as ornamentals, especially in European gardens.

The different species are found at all altitudes, ranging from the ocean sands to the summits of the lofty peaks of the Sierras. The shrubby lupine, *Lupinus arboreus,* has been instrumental in preventing the ocean sands from encroaching upon adjacent lands. The species of the genus are difficult to differentiate and the treatment of them in botanical literature is at the present time unsatisfactory. An attempt to list them here without much detailed study would only lead to confusion.

A list of the species on exhibit will be furnished by the Committee under No. 420 A-Z.

TRUE CLOVERS TRIFOLIUM

421. True Clovers.

The genus *Trifolium* comprises from 300 to 400 species, depending upon the judgment of the botanist dealing with them as to what characters are necessary in defining a species. Of these 115 belong to Europe, 100 to North America, 17 to South America, 71 to Asia, 32 to Africa, 18 to Australia, and 15 to Mexico.

The North American species are to be found chiefly in the Rocky Mountains and westward, only about six species being found in the Atlantic States. California has something like fifty or one-half the total number. Many of them are found only in California. The species of the coast ranges and the interior valleys are mostly winter annuals, while those of the Sierras and cooler parts of the State are mostly perennials.

The species commonly grown for forage, such as red clover, white Dutch clover, alsike clover and crimson clover, are indigenous to Europe. It is interesting to note that none of our native species has been been introduced into cultivation.

The leaves consist usually of three leaflets, although some species have as many as eight leaflets. The flowers are arranged in heads and consist of many florets closely or remotely placed on an axis. A common high mountain meadow species is *T. monanthum* with only one or two florets. In color they vary from white and yellow to pink, purple and red.

An interesting group of species particularly frequent on the Pacific coast is to be recognized by the inflation of the standard after flowering into a bladdery structure, *T. fucatum.*

Another group has flower heads that might be likened to a rabbit's foot, being densely clothed with silky hairs, *T. Macraei.*

Still another group is interesting because the head or floret rests on an involucre or cup which is variously lobed or divided on the margin, *T. variegatum.* One species with very large and beautiful reddish flowers is found among the sagebrush on the eastern side of the Sierras, *T. macrocephalum.* Another in the same general region has such strong fibrous roots that it has been termed Indian shoestring clover, *T. Andersonii.* A very rare and beautiful species of the high Sierras is *T. Bolanderi.*

Many of the species are important range forage plants, sometimes forming dense meadows in the mountains and excluding all other plants. The leafage of some was used by the Indians like greens and the seeds of others were gathered and ground into meal. None of them are poisonous or objectionable as weeds.

Space will not permit treating of the many species in detail. A list of the species on exhibit will be prepared under No. 421 A-Z.

422. Sweet Clover	Melilotus alba	Introduced along gravelly creek beds and along railroad tracks. Spray of white flowers and strong scented foliage, especially when dry. A useful forage plant.
423. Bitter Clover	Melilotus indica	Introduced and very common in the Bay region. Similar to the last but with yellow flowers. Considered the best cover crop for orange orchards. A few seeds in a sack of wheat is sufficient to taint the flour.
424. Large Yellow Melilot	Melilotus officinalis	Introduced but sparingly, although common in the eastern states. Flowers yellow and about twice the size of the last.
425. Alfalfa or Lucerne	Medicago sativa	The most valuable forage plant known. Occasionally found as an escape.
426. California Bur-Clover	Medicago hispida and vars.	Introduced in fleece of sheep sent to Missions, and now widespread. A valuable forage plant. Annual.
427. Southern Bur-Clover	Medicago arabica and vars.	Similar to the last, but with a reddish-brown spot on each leaflet. Introduced, but not as common as 426. Annual.
428. Yelow Trefoil or Black Medick	Medicago lupulina	Introduced sparingly. Differs in being quite hardy and having a cluster of pods like those on alfalfa. Of forage value in pastures. Sometimes a weed in lawns. Biennial or short-lived perennial.

LOTUS

429. Spanish Clovers
Bird's-foot Trefoils

Of the 120 or more known species, about forty-two occur in North American, and all but two are confined to the west. California has about twenty-five species distributed from the Mexican border to Oregon. Although still plentiful, there is every reason to believe that in early days before the great flocks of sheep traversed the State and the farmer commenced cultural operations, the valleys and hills were densely covered with one or other of the Spanish Clovers. They are true Californian plants and seem to enjoy the long period of sunshine without rain. Even now some of the annual species refuse to succumb to the effects of the plow and grow with the grain in such a manner as to be mutually beneficial.

The leaves are pinnate with from one to many leaflets and leaf-like or gland-like stipules. They may be glabrous or of various degrees of pubescence. The flowers vary from yellow to purple, pink and red, and are to be found singly or clustered in the axils or in terminal sprays. Yellow or orange-flowered species frequently turn to reddish or reddish-brown at maturity. The pods are dehiscent in some and indehiscent in others, often with a partition between the seeds.

In earlier botanical works the genus is treated under the name Hosackia and recently it has been divided up into a large number of genera which leads to greater confusion, and is only of value to the specialist.

L. americanus is a very common and variable annual species conspicuous during the summer by its foliage and solitary pinkish axillary flowers which form a strong contrast to the surrounding brown herbage. It is highly prized by stockmen in the Great Plains region where it is called Dakota vetch.

Lotus glaber is a perennial, almost shrubby species common in the coast ranges from the Bay region south to San Diego. It may be seen during the summer on sterile railroad embankments where nothing would be expected to grow. The numerous stems are reed-like owing to the small leaves which are early deciduous. The flowers are small, mostly solitary in the axils, yellow, later turning reddish. It is known as deer-weed or wild alfalfa by the stockmen because of its value as summer forage.

Lotus Torreyi is not unlike alfalfa in general height and appearance. It has strong underground rootstocks enabling it to form dense green patches which are readily grazed by stock. It is found along shaded stream banks in the Sierras and in low moist meadows of the coast ranges.

Lotus stipularis is particularly abundant in cut-over Redwood forests. It grows to a height of one to two feet with densely hirsute or glabrous sticky foliage. Flowers yellow to red with purple markings, pods straight and about an inch long. Not liked by cattle.

Lotus corniculatus, sometimes called Ground Honeysuckle, is a very pretty plant which has established itself abundantly in pastures adjacent to the ocean in northern Sonoma county. It has a long semi-tuberous root and partially trailing stems. The flowers are large, bright-yellow mixed with red. We do not find it mentioned in any of the California floras. It is a useful pasture plant and is often sown in Europe with the little white Dutch clover.

The species represented at the exhibit will be named under No. 429 A-Z.

PSORALEA

430. Scurfy Pea — Psoralea

Prostrate or very tall ill-scented herbs or semi-shrubs, covered with dark glandular dots from which the name "scurfy pea" has been derived. The leaves consist of from three to five leaflets which are pinnate or palmate. The flowers, which are in clusters, may be whitish, pink or purplish. The pod is indehiscent and one-seeded. Readily eaten by stock.

431. Prostrate Scurfy Pea	Psoralea orbicularis	A creeping, rooting plant with roundish leaflets and purplish flowers with long stalks. Grassy meadows throughout the State.
432.	Psoralea strobilina	Erect, 2-3 feet high, flowers purple. Hills, Bay region. Seldom collected.
433. Tall Scurfy Pea	Psoralea macrostachya	Erect and very tall, 4 to 10 feet, flower stalks much longer than the leaves. Purple flowers in silky-woolly clusters. Delta regions and bottoms of canyons throughout the State.
434. Green Scurfy Pea	Psoralea physodes	A foot or so high with many nearly smooth stems spreading from the base. Recognized by its greenish-white flowers. Wooded slopes and hills. Coast ranges.

435. Mountain Scurfy Pea — Psoralea Californica — Leaves palmate with 5 leaflets; a low plant with many stems from a woody base. Mt. Diablo and head of Salinas river. Seldom collected.

436. Indian Turnip or Missouri Bread-Root — Psoralea esculenta

A low plant of wide distribution, may not enter California, although we have collected it in the hot, sandy, southern deserts of Nevada. One is surprised in digging up this small plant to find that it has a large starchy tuberous edible root the size of an average potato. The leaves are palmate with obtuse leaflets. Flowers bluish-purple.

437. False Indigo — Amorpha hispidula — A heavy scented deciduous shrub with odd-pinnate foliage dotted with glands. Flowers consist of violet sprays terminating the branches. Wooded canyons Bay region southward.

DALEA

An interesting group of characteristic desert herbs or shrubs. Leaves and stems conspicuously dotted with dark-colored glands. When in blossom conspicuous and attractive owing to numerous sprays of white, rose-colored, violet or purple flowers. Mostly in dry washes and canyons of the southern deserts.

438.

Dalea polyadenia is a common species in the sandy deserts in Nevada and enters the State at Owen's Valley, Inyo County. It has gray stems with numerous reddish conspicuous glands, small leaves, and small sprays of violet blossoms.

439.

Dalea Californica, in dry washes of the San Benardino Mountains.

The species of the Colorado desert are D. mollis, D. Emoryii, D. Schottii, and D. spinosa.

The genus in more recent works is treated under Parosela.

440. Liquorice — Glycyrrhiza lepidota and var. — A perennial herb with thick sweet roots, odd pinnate leaves and sprays of yellowish - white blossoms. Pod thickly covered with conspicuous hooked prickles. Valleys and plains north and south. Sometimes a weed in pastures.

441. CRAZY-WEEDS, LOCO-WEEDS, RATTLE-WEEDS, GROUND PLUMS, MILK VETCHES ASTRAGALUS

This is a very large genus of plants numbering about 1000 species distributed throughout the world. Of these about 200 occur in North America with three-fourths of this number in the west. How many of these may be included in the Flora of California is not known. but 50 species would be a conservative estimate. They are annual or perennial herbs or semi-shrubs, with usually odd-pinnate leaves, white, yellowish, violet, red or purple blossoms, and rigid or frequently inflated smooth or hairy pods within which the seeds in some species rattle when ripe. The fruit of some of the prairies species is edible, hence the name "ground plum." Certain species are prized as forage plants in Japan and India, hence the name "milk vetch." The name loco-weed, or crazy-weed is given to some because stock feeding on them act as if mentally deranged and acquire the habit of eating them to the exclusion of all other forage. Large flocks of sheep are sometimes affected in this manner in certain Rocky Mountain states when they must be taken to new range free from loco-weeds, or immediately slaughtered for market. Fortunately, most of our California species do not possess those deleterious characteristics, as

few reports of locoed animals are brought to the attention of veterinarians. Many of the species, although abundant, are decidedly unpalatable to stock and are only eaten when there is a minimum supply of forage. It is frequently due to the shortage of forage that the habit of eating them is begun with the effect that an insatiable desire for them only is engendered.

The California species are distributed from sea level to the highest mountain peaks in dry, medium and moist situations, and on all classes of soils.

Astragalus Hornii seems to be the species that has caused more trouble than any other in California. It is found on the eastern side of the Sierras and in the interior valleys. It is a low spreading plant with smooth or minutely pubescent leaves which consist of from seventeen to twenty-one leaflets, and yellowish-white dense clusters of flowers. Each floret is only a quarter of an inch long. The egg-shaped pods are inflated, minutely pubescent and about half an inch long, tapering to a prominent apex.

The identification of the many species is difficult and much remains to be learned concerning them. In collecting, mature fruits should be secured, as the classification of the species is largely based on the character of the pods. Some botanists have recently divided the genus up into a large number of closely related genera, which can be of value only to the specialist in the group.

442. Desert Ironwood	Olneya tesota	A small tree with spines below the thick leaves; no stipules; white or purplish axillary sprays; pod thick, rough and leathery, 1 to 2 inches long. Along or near washes, Colorado Desert.
443. Giant Vetch	Vicia gigantea	The common perennial species along creeks in the Bay region northward. Found climbing up trees and over shrubbery. Profuse sprays of reddish-purple blossoms. Seeds edible.
444. American Vetch	Vicia americana and vars.	Common in the hills and extremely variable as to the height of plant and breadth of leaflets. Flowers in sprays, at first purplish changing to blue.
445. California Vetch	Vicia exigua and vars.	A slender plant 1 to 2 feet high, with about 4 pairs of leaflets and one or two flowers on a slender stalk, white or purplish. Sandy soil, coast ranges, especially south.
446. Common Vetch	Vicia sativa and vars.	A stout, strong growing vetch escaped from cultivation to pastures and grain fields where it is frequently sown for forage and green manuring purposes. Leaflets with a notched apex and one or a pair of sessile flowers in the axils. They are about an inch long and violet-purple. One of the best known cover crops for California orchards.

In *Vicia* the style is tipped by a terminal tuft of hairs, while in *Lathyrus* it is hairy along the sides as well, like a toothbrush.

447. Torrey's Wild Pea	Lathyrus Torreyi	Without tendrils, stipules small, 1 to 2 flowered flowers purplish, ½ inch long. Shady woods, coast ranges.
448. Maritime Wild Pea	Lathyrus littoralis	Seashore Marin County northward, Purple and white.
449. Common Wild Pea	Lathyrus vestitus and vars.	Stems angled, purplish. Coast ranges, often climbing several feet over brush.
450. Watson's Wild Pea	Lathyrus Watsoni and var.	Large white flowers, veined with purple.
451. Jepson's Wild Pea	Lathyrus Jepsonii	Suisun marshes.
452. Yellow Wild Pea	Lathyrus sulphureus	Sulphur yellow flowers. Sierras.

The species are not as yet well defined. Probably half a dozen additional species.

453. Judas Tree, Western Red Bud	Cercis occidentalis	A small tree or shrub, reddish flowers appearing before the round heart-shaped leaves. Sierra foothills and inner coast ranges, north to south.
454. Palo Verde	Parkinsonia Torreyana	Tree or shrub armed with short spines, flowers yellow or whitish. Salton sink, Colorado Desert.
455. Mesquite or Algaroba	Prosopis glandulosa	

Spiny tree or shrub widely distributed in alkali flats of the desert regions of southern California. Flowers small and greenish. The pods, which look not unlike those of an ordinary bean, hang in clusters. It is eaten by Indians and often by whites, and is also a valuable food for stock. It also furnishes a valuable gum.

456. Screw Bean Tornilla	Prosopis pubescens	In similar localities to the above, but can be readily recognized when in fruit by the pods which are spirally twisted many times. Also used for food by the Indians.
457. Desert Acacia	Acacia Greggii	

Numerous species of Acacia have been introduced into California from Australia for ornamental purposes, but not everyone knows that we have one that is a native. It is a small shrub or tree with hidden hooked prickles, clusters of yellow blossoms, and a flat, curved pod more or less constricted between the seeds. Colorado Desert region.

ROSE FAMILY ROSACEAE

The family is sometimes divided up into the Rose Family, *Rosaceae*, the Apple Family, *Pomaceae*, and the Plum Family, *Drupaceae*, but it will serve our purpose better to retain them as one family. Roses, peaches, apples, pears, plums, cherries, almonds, strawberries and blackberries, are well known representatives of the family.

WILD PLUMS PRUNUS

458. Sierra Plum	Prunus subcordata	A scraggy shrub with ash-gray bark and bright red fruits nearly one inch long. Coast ranges and Sierras, especially in Lassen and Modoc Counties, where large quantities are put up for winter use.
458a.	Prunus Fremontii	Southern California, spiny shrub.
459. Red Cherry	Cerasus emarginata	Shrub with dull-red bark, flat topped clusters of flowers and bright red clusters of fruit, bitter and astringent. Branches that have been broken, causing the leaves to wilt, frequently develop hydrocyanic acid and poison stock. Medicinal. Frequent in the Sierras, rare in Bay region.
460. Western Chokecherry	Cerasus demissa	Similar to the above, but fruit sweet, dark-purple and astringent.
461. Islay	Cerasus ilicifolia	Evergreen with handsome large holly-like leaves. Fruit deep, dark purple, sweetish when ripe; often one-half inch across.
462. Wild Peach	Amygdalus Andersonii	A low spreading shrub with spiny branchlets, pink, profuse blossoms appearing before the leaves. Fruit not fleshy and more like an almond. Eastern Sierras, Sierra County. Handsome.
463. Desert Wild Peach	Amygdalus fasciculata	Very similar to the above, but with narrower leaves and more desert-like in aspect. Small white flowers. Eastern side southern Sierras.
464. Oso Berry	Osmaronia cerasiformis	A shrub or small tree with fragrant white flowers and blue-black bitter fruits in clusters of 1 to 4. Moist places. Coast ranges and Sierras.
465. Meadow Sweet	Spiraea betulaefolia	A low shrub with serrated leaves an inch or two long and clusters of pale-purple flowers. Sierras, 5,000 to 9,000 feet.
466. Hardhack	Spiraea Douglasii and vars.	An erect shrub 3 to 5 feet, serrated leaves and clusters of rose-colored flowers. Northern California.

467. California Meadow Sweet — Holodiscus discolor and vars.

A variable shrub with deeply lobed leaves, white beneath with silky hairs and yellowish green above. Terminal clusters of creamy white flowers.

From exposed rocky ledges where it is frequent in the eastern Sierras to wooded canyons of the coast hills.

468. — Chamaebataria millefolium — A shrub with small fern-like sticky leaves and terminal clusters of many white flowers in a spicate inflorescence. Southeastern Sierras and south.

469. Goat's Beard — Aruncus sylvester — A smooth herbaceous perennial. Leaves large, composed of 3 to 7 leaflets. Numerous small white flowers arranged in profusely spreading sprays. Rich soil along streams in Shasta and Trinity Counties.

470. Nine Bark — Opulaster opulifolius — Branching shrub, bark peeling off in thin strips. Leaves roundish-ovate with serrated lobes. Flowers whitish in globose terminal clusters. Near streams in Bay region and northward, also Sierras.

471. Mountain Misery — Chamaebatia foliolosa — A low shrub with a disagreeable resinous odor. Leaves 1 to 3 inches long and very finely dissected. Young branches end in flat clusters of several white flowers which are about one-third of an inch across. Western Sierras, Mariposa to Nevada Counties. In some localities excluding all other vegetation.

472. Bitter Brush — Kunzia Pursha tridentata

A compact shrub growing among the sagebrush and with leaves like it, but yellowish-green instead of gray; often forming a scraggy tree in the mountains. Numerous sessile yellow flowers along the terminal branchlets in May. Characteristic of the eastern Sierra foothills. Leaves bitter, but eaten extensively by stock, especially in winter.

473. — Coleogyne ramosissima — A much branched somewhat spiny shrub of the southern desert regions with showy yellow flowers on the terminal branchlets. Should be in cultivation. Not uncommon in southern Nevada and probably in southeastern California.

474. Coast Mountain Mahogany	Cercocarpus betulaefolius	A shrub or small tree with spreading or recurved branches. Leaves thick, roundish and partially serrate on the margins. Conspicuous in fruit by the feathery tail-like appendage.
475. Sierra Mountain Mahogany	Cercocarpus ledifolius	Similar to the last, but with narrow tapering leaves. very hard wood and prized as fuel. Excellent windbreak. Abundant, high foothills, eastern Sierras.
476. Large-leaved Avens	Geum macrophyllum	Bristly, hairy herb with lyrate-pinnate leaves, the terminal lobe conspicuously large; margins all toothed. Several yellow flowers, and fruit prominent by its numerous strongly hooked bristles. Eastern Sierras in moist ravines at medium elevations.
477. Purple Avens	Geum ciliatum	Leaves pubescent and divided into many small dissected leaflets. Flowers light purple, feathery styles in fruit. Sierras 4000 to 9000 feet.
478. Wood Strawberry	Fragaria Californica	The strawberry of the woods of the Coast ranges.
479. Sand Strawberry	Fragaria Chilensis	Forming beds on the sand banks near the ocean.
480. Sierra Strawberry	Fragaria virginiana	Sierras.
481. Five Fingers	Potentilla	

Mostly herbs with compound leaves of three to five finger-like leaflets or seven to fourteen pinnate ones. The stamens number from ten to many, and are surrounded by conspicuous yellow or white petals. The genus is widely distributed in North America and Europe, with perhaps twenty species in California. They are found in dry and wet places, in the shade or in the open, from the ocean shore to the high mountains. Some of the species have been used medicinally. The species are variable and not easily defined and one should consult the excellent monographs of the genus for those not found in the local floras.

The Silver Weed, *P. anserina* is of unusual human interest because of its wide distribution in this and other lands and its occurrence in the salty sands near the ocean and the alkaline meadows of the mountains and deserts. It has a strong perennial root and by means of its creeping and rooting stems, often forms a sod. The leaves in their early stages have a silvery hue from the numerous silky hairs. The flowers are large, yellow and soft like velvet. The country people in Scotland eat the roots roasted or boiled, the taste of which somewhat resembles that of a chestnut. The roots are also soaked in buttermilk for nine days and a face lotion prepared that was considered to be able to make freckle-faced maidens fair and beautiful.

P. fruticosa is a truly shrubby species that commands our respect by withstanding the strenuous and rigorous conditions on high mountain rocky ridges.

482. Horkelia

Similar to Potentilla, and by many authors included with it.

H. fusca is a very common plant throughout the Sierras with dense clusters of purplish small flowers terminating the stems.

H. Californica is one of the common species in wooded slopes of the Coast ranges.

483. Sibbaldia procumbens

A dwarf Alpine plant resembling Potentilla and frequently forming dense carpets by its sturdy growth. Leaves consist of three few-toothed leaflets. Yellow flowers in clusters. High Sierras.

484. Ivesia

A group of perhaps a dozen species of the Sierras or adjacent regions eastward and very similar to Potentilla. The leaflets are quite numerous and much lobed or dissected.

P. Pickeringii is frequent from Lake Tahoe to Sierra Valley.

485. Chamisal, Chamiso, Greasewood	Adenostoma fasciculatum	One of the most common evergreen shrubs of the higher Coast ranges. Leaves thick, small, numerous and rigid and somewhat resinous. Flowers small, white and in pyramidal terminal clusters. One of the many shrubs called greasewood. Often in dense thickets on dry hills of foothills. Sierras also.
485a. Yerba Del Pasmo	Adenostoma sparsifolium	Fragrant shrub. Southern California. Medicinal.
486. Lady's Mantle	Alchemilla arvensis	A small annual 1 to 3 inches high with palmate lobed leaves and minute greenish flowers. Hills and plains; common; probably introduced.

487. Agrimony Agrimonia gyrosepala

A tall glandular, hairy plant. Leaves of five to seven coarsely-toothed thin pinnate leaflets with additional, much smaller ones between them. Flowers yellow. Fruiting body with a ring of conspicuous erect and reflexed spreading hooked bristles. Thought to be medicinal. Borders of woods in the mountains, middle and northern California.

488.	Acaena trifida	Perennial herb often creeping and woody at the base. Odd pinnate leaflets. No petals. Inflorescence a crowded globose spike, later appearing as clusters of bristly achenes which have 2 to 4 prominent stout prickles and many shorter ones at their base. Dry hills, Coast ranges.
489. Perennial Burnet	Poterium officinale	Perennial, glabrous leaves, pinnate, leaflets petioled; flowers deep purple in oblong spikes; fruits small. Northern California. Of forage value.
490. Annual Burnet	Poterium annuum	Sacramento valley and meadows near Truckee.
491. California Wild Rose	Rosa Californica and vars.	Hip or fruit globose, calyx-lobes pubescent. Throughout California.

492. Wood Rose	Rosa gymnocarpa	Hip or fruit ovate or pear-shaped. Calyx-lobes generally deciduous. In the shade of trees or bushes. Coast ranges.
493. Sonoma Rose	Rosa spithamea var. Sonomensis	Small flowers, globose fruit, calyx lobes nearly erect and glandular - hispid. High dry slopes, Sonoma County.

Probably several other species now regarded as varieties of the above.

494. California Christmas Berry. Toyon — Heteromeles arbutifolia / Photinia arbutifolia

A well known, beautiful shrub, especially when laden with its clusters of crimson berries.

Let us be merciful when picking it and use it, but not abuse it. A well selected spray will bring as much cheer as an automobile load, and yet leave some for future generations.

495. Thorn	Crataegus rivularis	Thorny shrub with stout spines, heavy scented clusters of white flowers and dark purple fruit. North and northwestern California.
496. Wild Crab-apple	Malus rivularis	Shrub or small tree, with white flowers and small apple-like fruits variable in color. North Coast ranges to Oregon.
497. Western Mountain Ash	Sorbus sambucifolia	A shrub 4 to 8 feet high with 7 to 15 leaflets, and flat clusters of whitish flowers at the ends of the branches. Round red fruits. Occasionally seen in the Sierras near streams at medium elevations. The only western species.
498. Service Berry, June Berry	Amelanchier alnifolia and vars.	

A widely distributed shrub from the coast through the Sierras to Nevada. Extremely variable, the extremes being named as distinct species by some. Leaves smooth to pubescent. Some forms by streams, others among sagebrush in the open. Flowers white, rather large, in clusters. Small purplish fruits edible when ripe. Good forage browse.

499.	Peraphyllum ramosissimum	A shrub with short rigid branchlets with one to several flowered clusters appearing before the leaves. Fruit round, fleshy and edible. Lassen and Modoc Counties.
500. Thimble Berry.	Rubus parviflorus var.	Erect shrub with large, 5-lobed leaves. Flowers white. Fruit nearly flat on top. Berries large, red when ripe, and sweet; edible but too dry. Coast ranges.

501. Salmon Berry	Rubus spectabilis var.	Leaves mostly with 3 leaflets. Margins toothed or even lobed. Occasionally straight stout prickles. Flowers 1 to 3 in a cluster. Berries salmon-red or yellow, large, egg-shaped, edible. Shady woods, Coast ranges.
502. Raspberry	Rubus leucodermis	Long straggling branches covered with numerous short hooked prickles. Three leaflets, toothed, berries black or red; good. Northern California and Sierras.
503. Common Blackberry	Rubus vitifolius	The common trailing or climbing blackberry of the Coast hills and the interior valley along streams. Berry black, oblong and sweet.

SWEET SHRUB FAMILY CALYCANTHACEAE

504. Sweet Shrub Calycanthus occidentalis

A fragrant shrub with odor of strawberries especially when crushed. Leaves opposite with entire margins. Inflorescence of unusual conformation and consisting of a single flower with the basal parts of the sepals united into a cup-shaped tube, in the mouth of which the petals are inserted. Flowers of an unusual purple and fragrant. Calyx tube later enlarges and encloses the numerous achenes. Near streams, Coast ranges and Sierras from middle California north.

SAXIFRAGE FAMILY SAXIFRAGACEAE

Here we find our wild currants and gooseberries, the beautiful alum root decorating rocky ledges, and the handsome Carpenter shrub, a truly Californian species.

505. Saxifrage Saxifraga

The Saxifrages for the most part like seclusion and are rarely found in the open country. They seem to be associated with beautiful scenery on rocky ledges by streams, in shaded ravines or where it is cool in the very high mountains. The leaves are clustered at the base, from the center of which arise the stalks bearing graceful sprays of small white or rose-colored flowers.

S. peltata differs from the other species in having very large leaves with the petiole attached like those of the garden nasturtium. It occurs by swiftly flowing streams in the Sierras. *S. Tolmiei* has short stems which bear many small sessile leaves. High Sierras.

Species found in the coast region are *S. virginensis,* found mostly in rocky places with the leaves elliptical and tapering towards the petiole, and *S. mertensiana* with the leaves heart-shaped at the base. *S. Parryi* which occurs in the dry hills around San Diego, flowering in November and December, is interesting because of its habitat and peculiar morphology. It has been separated from the genus and called *Jepsonia Parryi.*

Some half a dozen additional species are found in the Sierras, mainly at high elevations.

506.	Boykinia	Similar to Saxifraga. *B. elata,* woods of the Coast ranges mainly, and *B. major* of the Sierras.
507. Star Flowers and Fringe Cups	Tellima	

Slender herbs bearing small tubers and simple terminal racemes of white, pink, or red flowers.

T. affinis (Star of Bethlehem) is common throughout the state with scalloped leaves and petals mostly three-toothed at the apex.

T. heterophylla has three-parted leaves and petals with a stout tooth on each side. Shade; Coast ranges.

T. grandiflora (False Alum Roots; Fringe Cups) redwoods of the Bay region, has three to five shallow lobed leaves and many cleft petals which are at first greenish, later changing to pink and red.

Several additional species.

508. Bolandra	Bolandra Californica	A low delicate plant with bulblets at the base of the stem. Petals 5, very small, narrow and recurved, dull-purplish. In general aspect like a Saxifrage. Commemorates the pioneer California botanist, Dr. H. N. Bolander. On wet rocks, Yosemite.
509.	Tolmiea menziesii	A foot or two high with rootstocks and runners. Like a Saxifrage in general aspect, but with greenish or purple tinged flowers nearly half an inch long. Buds drop from the petioles and root forming new plants. Forests, Mendocino County.
510. Coolwort	Tiarella unifoliata	A low slender herb often spreading by summer runners. Small inconspicuous flowers with white, almost thread-like petals in terminal racemes. Shaded woods San Mateo northward.
511. Mitre-wort or Bishop's Cap	Mitella Breweri	Small perennials with slender rootstocks and summer runners, racemes of small greenish-white flowers and heart-shaped leaves, mostly from the base. Petals finely divided. Woods, Sierras, 6,000 to 11,000 feet.
512.	Mitella trifida	Similar to the above, petals 3 to 5 parted. Mountain woods, Mendocino county.

ALUM ROOT HEUCHERA

Striking and beautiful plants that cheer us on the trail as we pass by the rocky ledges. They seem to invite inspection, so boldly do they attach themselves to the most precipitous mountain sides. They have stout root stocks, heart-shaped and lobed leaves from the base and small flowers inserted on the calyx and capsules with two beaks. Inflorescence widely spreading or spike-like.

513. Ruby Alum Root	Heuchera rubescens	The common species of the Sierras and a favorite for table decorations in the camps of the Yosemite.
514. Coast Alum Root	Heuchera micrantha	Common in Bay region near the coast. Sierras also.

515. Dense Alum Root	Heuchera pilosissima	Close clustered flowers. Coast region. San Francisco north.
516. Interior Alum Root	Heuchera cylindrica	Probably in northeastern California.
516a. Golden Water Carpet	Chrysosplenium glechomaefolium	Woods, wet places, trailing. Humboldt County.
517. Grass of Parnassus	Parnassia palustria and var.	

Unlike any of the other members of the family and certainly has no resemblance to a grass. The name comes to us from Europe, where it is frequent in spongy bogs. Name probably from Mount Parnassus.

It has short bulb-like root-stocks from which arise long-stalked leaves shaped like those of most violets. The flowers are white or cream colored, beautifully veined, and occur singly. The corolla has a peculiar aspect due to one of the series of stamens being sterile and forming fringed fan-shaped scales.

Rare in the Bay region, but more common in wet cool places in the Sierras. Lake Tahoe region.

518.	Parnassia fimbriata	Similar, but petals fringed on the margins at or near the base. Cold bogs. Mt. Shasta and elsewhere in the Sierras.
519. Mock Orange or Syringa	Philadelphus	Relatives of the well-known cultivated mock orange. *P. Lewisii var Californicus,* Sierras; *P. Gordonianus,* north Coast ranges.

520. Carpenter's Shrub — Carpenteria Californica

A Californian shrub of rare beauty and quite local in its distribution, occurring in the Sierras from the head waters of the San Joaquin well down into the valley. It resembles the mock orange, but the shrub is more erect and has dense clusters of very large white blossoms terminating the branchlets. In cultivation, but should be more extensively grown.

Named by Torrey in honor of Professor Carpenter of Louisiana.

521.	Whipplea modesta	A low shrub with trailing branchlets and clusters of 4 to 9 flowers, at first white, later turning greenish. Coast ranges among shrubbery of the redwood region. Named for Lieutenant A. W. Whipple.

522. Currants, Gooseberries — Ribes

Members of this genus are recognized by their resemblance to the cultivated species. The flowers may be yellow, pink, purplish, greenish or red. Some are fragrant, while others are ill-smelling. The berries of many are insipid and perhaps even deleterious, while others are sweet, juicy and very palatable.

There are about twenty species in the State, ranging from the Coast hills to the higher mountain peaks.

In the Coast region some are eagerly sought after in early spring because of their floral beauty. Here again we should be merciful and not gather them by the armful or load up the automobile.

Space will not permit of a treatment of the species, and one should consult the local floras.

STONECROP FAMILY CRASSULACEAE

Succulent or fleshy plants typified by the popular Live-for-Ever or Hen-and-Chickens of the gardens. Most of them on rocks or in cold, boggy meadows.

523. Pigmy-weed	Tillaea minima	A very small plant an inch or two high, with opposite leaves and minute white or pinkish flowers in the axils. Sterile soils, Sonoma to San Diego.
524.	Tillaea Drummondii	Similar, but with red flowers on very short pedicels. Moist places, Sacramento Valley.
525. Stone-crop	Sedum spathulifolium	Flowers yellow. Rocky walls in secluded canyons. Bay region north.
526.	Sedum Rhodiola	Flowers deep purple, alpine bogs, Sierras.
527.	Sedum radiatum	Flowers yellow. Summits, Monterey to Mendocino.
528.	Sedum pumilum	Flowers yellow. Gravelly soil. Buttes. Sacramento Valley.

Several additional species in the Sierras, Mendocino County and near San Diego.

529. Cotyledon

Stout perennials with thick fleshy leaves, the lower ones in rosettes. Flowers often large and showy, yellow or reddish. Petals united into a pitcher-shaped corolla. There are perhaps a dozen species in the State, but local in their distribution.

The leaves of some of the species were eaten by the Indians.

Mostly on rocky ledges in ravines in the mountains or near the ocean.

The species are not yet well known to botanists and good specimens in flower and fruit would be welcomed by them.

530. SUNDEW FAMILY DROSERACEAE

An interesting group of insectivorous plants with remarkable habits. They will not be found by the casual observer and one must get close to mother earth to discover them. The principal genus is Drosera, with about 100 species in the world, mostly Australian. About half a dozen occur in North America, two extending to California.

Drosera Rotundifolia is to be found in the cold low wet places in the Sierras and in Mendocino County, often hidden by the grass. The same species one finds in Great Britain when kneeling down in the heather awaiting the rise of a covey of grouse.

It is a small plant with tentacle-like petioles radiating from the base and expanding into small round disk-like leaves. The leaves are covered with red hairs, on the ends of which are small drops of sticky fluid appearing like dew even in bright sunshine. This fluid is sweet and attracts insects which become entangled in the hairs which hold them as a vise until death. The plant then eats them, or at least is believed to absorb the insects for its nourishment. A peduncle bearing a spray of white flowers arises from the center and lucky indeed is the one who is fortunate enough to find them when open for inspection.

Drosera anglica is also found in Europe but very seldom in California, Sierra Valley. It is similar, but with oblong, wedge-shaped leaves instead of round.

The Sundews were at one time prized in Europe for medicinal purposes and a cosmetic was made from the juices when mixed with milk.

LOOSESTRIFE FAMILY LYTHRACEAE

Ours are unattractive plants with square, erect stems and purplish or whitish flowers in the axils where they are more or less concealed by the leaves.

531. California Loosestrife	Lythrum Californicum	A tall perennial. Flowers bright purple and pedicelled. Marshy places, Sacramento Valley.
531a.	Lythrum hyssopifolia	Flowers nearly sessile, pale purple or whitish. Introduced. Abundant in swampy alkali lands that have been partially under cultivation. Weed. Coast ranges and Sacramento Valley.
532. Red Stem	Ammannia coccinea	

Annual erect stems which turn red at maturity. Sessile clasping leaves, and one to five small purplish flowers clustered in the axils. Later these form conspicuous globose capsules filled with powdery seeds. Interesting morphologically, as the portion of the stem below the water line bursts and from it is produced a white, spongy mass of tissue.

Low, swampy lands of the interior valley. It has found ideal conditions for its growth in the rice fields and is now a serious weed pest.

533. Low Red Stem	Ammannia humilis	Similar but smaller and less aggressive and with petioled leaves. Sacramento Valley.

WATER-MILFOIL FAMILY HALORAGEAE

Distinctive acquatic plants with numerous leaves and insignificant inflorescence.

534. Mare's Tail	Hippuris vulgaris	A striking plant as it grows erect in the water with its numerous whorls of simple leaves. Flowers minute in the axils. Throughout the State in cool, shallow ponds or irrigation ditches.
535. Water-Milfoil	Myriophyllum spicatum	Submerged leaves in whorls and very finely divided, or feather-like. Flowers in a terminal slender spike. Lakes and ponds, Bay region.
535a.	Myriophyllum hippuroides	Similar, but with flowers in the axils. Clear Lake and Stockton.

EVENING PRIMROSE FAMILY ONAGRACEAE

This family has come into unusual prominence during recent years on account of its principal genus Oenothera being extensively grown by De Vries in Europe and Gates and others in America in substantiation of the Mutation Theory of Plants. Many of its members are ornamentals. They occur throughout the State from the sandy deserts to the valleys, hills, ocean beaches and high mountains.

536. Water Purslane	Ludwigia palustris	Marsh or water plants, flowers in the axils. Coast region and Sierra Valley.
537. California Water Weed	Jussiaea Californica	Muddy shores; stems creeping and rooting; flowers yellow, about one-half inch across. Sloughs, coast and interior valleys.

538. Wild Fuchsia	Zauschneria Californica and var.	A low perennial with scarlet flowers resembling the Fuchsia of the gardens. Extremely variable. On dry creeks, cliffs and rocks. Coast ranges and Sierras.

539. Willow Herbs, Fireweed — Epilobium

Annuals or perennials with reddish or white flowers. All but one with insignificant flowers. Tuft of hairs on seeds.

There are about a dozen species in the State, the following being quite common: *E. Californicum,* tall coarse perennial; moist ground; interior valley. *E. paniculatum,* annual, wide-spread, weedy tendencies; coast region and over the Sierras.

539a. Fireweed — Epilobium spicatum

On rather dry hillsides and ravines in the northern Coast Mountains and Sierras, often forming extensive masses of pinkish-purple by the sprays of rather large flowers. It is seldom that such an attractive plant will spread so surely and so quickly over burned areas in the forest. One of the most conspicuous plants in midsummer in the Sierras.

540.	Gayophytum ramosissimum	Annual with numerous slender branches and small narrow leaves, with minute white or rose-colored flowers. Few seeded. Dry slopes, Sierra foothills and into sagebrush territory. Frequent.
541.	Gayophytum racemosum	Similar, but stouter and many seeded. Sandy places, Sierra foothills. Frequent.
542.	Gayophytum diffusum	Flowers sometimes one-half an inch across; 4 to 8 seeded. Less frequent, Sierras, north and south.
543.	Eulobus Californicus	1 to 3 feet high. Flowers showy, yellow turning to red. Capsule 4-angled and turned back. Dry places, Santa Barbara, San Diego.

EVENING PRIMROSE OENOTHERA

A large genus of 100 or more species with about sixty in the United States and perhaps thirty of these in California. More recently the genus has been divided up into a large number of genera on somewhat meager morphological differences not readily discernible without special study. Some of them are as follows: Onagra, Anogra, Kneiffia, Hartmannia, Pachylophus, Lavanxia, Gaurella, Megapterium, Galpinsia, Meriolix, Chylismia, Sphaerostigma.

The genus comprises annuals or perennials, some even woody at the base. Some are low without stems and others several feet high with stout branching stems. The flowers are for the most part white, cream colored or yellow turning reddish while fading. In size the flowers are from a quarter of an inch to several inches across. Both the leaves and the flowers of an individual species show remarkable variations in size and structure of the petals. For this reason one is very apt to collect specimens that deviate so greatly from the average description as to be unrecognizable. This has been wonderfully worked out in great detail by a series of hundreds of individual flowers selected and pressed by Katherine Brandegee. These must be seen to be truly appreciated.

Although the term evening primrose is generally given to the genus alluding to the opening of the flowers towards evening and their pollination by nocturnal moths, yet the larger number are morning primroses.

544. Sun Cups, Golden Eggs — Oenothera ovata

The beautiful Oenothera ovata now so frequent in the Bay region bids us a cheery good morning as we go to work and as sweetly as we return in the evening bids us good night. Hence it is appropriately called "Sun Cups" in the morning and "Golden Eggs" in the evening. We are grateful to be able to report that this species is able to withstand the annual burning in our suburban districts without apparent diminution.

545. Yellow Evening Primrose	Oenothera biennis	A tall and large flowered species which greets us almost everywhere we go in some one or other of its numerous forms. The flowers exhale a strong perfume at night or during cloudy weather and last but for a day. Frequent in cultivation.
546. White Evening Primrose	Oenothera Californica	Central and southern California.
547. Beach Evening Primrose	Oenothera cheiranthifolia	In flower at all seasons. Sands along the coast line.
548. Desert Evening Primrose	Oenothera trichocalyx	On the warmest of sandy deserts. Flowers large. With or without stems.
549. Rose-colored Evening Primrose	Oenothera caespitosa	Eastern Sierras.
550. Winged Evening Primrose	Oenothera triloba	Capsule winged. Eastern Sierras, Sierra Valley.
551. Nuttal's Evening Primrose	Oenothera Nuttallii	Plant and leaves resemble the dandelion, but coarse and pubescent. Eastern Sierras. Alkaline flats.
552.	Oenothera heterantha and vars.	Similar to the last, but with larger and nearly smooth leaves. Capsule 4-winged. In wet places. Eastern Sierras.
553.	Oenothera graciliflora	
554.	Oenothera micrantha	Small flowered species of the coastal region and elsewhere.
555.	Oenothera hirtella	
556.	Oenothera strigulosa	
557.	Oenothera dentata	
558.	Oenothera alyssoides and vars.	Small flowered species to be looked for on the eastern side of the Sierras, entering from the desert where they are not uncommon.
559.	Oenothera scapoidea and vars.	
560.	Oenothera brevipes	
561.	Oenothera cardiophylla	
562.	Oenothera andina	Dwarf annual, 1 to 3 inches high. To be looked for in northeastern California.
563.	Oenothera bistorta and var.	Southern California, sand hills, near the sea. San Diego.

564. Nodding Evening Primrose	Oenothera gauraeflora	Nodding clusters of numerous white flowers which turn rose color. Frequent in foothill gulches, San Joaquin Valley and elsewhere.

Probably additional species.

FAREWELL-TO-SPRING GODETIA

The State of California may well be proud of the possession of such elegant wild flowers as the Godetias. When the grasses have turned brown, the grain fields ripe, and the trail dusty, we are rewarded by masses of showy rose-colored blossoms, the center of the cup frequently brightened and contrasted by a deeper shade.

The species are confined to the west coast of North and South America. Heller's Catalogue of North American Plants lists sixteen species, all of which are to be found within the boundaries of the State. Several of these are regarded as varieties by some authors, making the number of the species indefinite. Unlike most of the genera, they do not extend far up into the Sierras, but confine themselves largely to our coast hills and valleys, very few of them extending high up into the Sierras. A number of them have been introduced into cultivation, for which they are well adapted, growing easily from seed and asking but little attention from the water meters. We should make an especial endeavor to multiply these favorites by the sowing of seed whenever and wherever we can.

565.	Godetia biloba	
566.	Godetia epilobioides	The botanical features and distribution of these species are well treated in the local floras so that we can conserve space by simply listing the names.
567. Herald of Summer	Godetia amoena and var.	
568.	Godetia quadrivulnera var.	
569.	Godetia albescens and vars.	
570.	Godetia lepida and var.	

As in Oenothera, some of the species are extremely variable. Jepson gives an excellent account of the variations of *G. quadrivulnera,* and the pressed individual flowers by Katherine Brandegee show numerous variations in the size and form of the petals.

571.	Godetia tenella	Considered a variety of *G. quadrivulnera.*
572.	Godetia micropetala	Variety of *G. albescens.*
573.	Godetia Bottae	Monterey to San Diego, in Heller's Catalogue.
574.	Godetia hispidula	Sacramento and Tulare Valleys.
575.	Godetia Williamsonii	Foothills of the Sierras.
576.	Godetia viminea	Sierras, Yosemite Valley.
577.	Godetia purpurea	Monterey and north.
578.	Godetia grandiflora	Hillsides, Humboldt and Mendocino Counties. Very large flowers, light purple with large crimson spots. In cultivation.
579.	Godetia Romanzovii	Cultivated.

CLARKIA

A small genus of graceful annual plants with rose-colored flowers recognized by the long-clawed petals which may be lobed or entire. They are confined to the Pacific Coast and some are well-known in cultivation.

580.	Clarkia rhomboidea	Widely distributed, coast and Sierras. Petals entire, claw short and broad, often toothed.

581.	Clarkia elegans	Widely distributed, coast and Sierras. Common in cultivation. Petals entire, claw long and slender.
582.	Clarkia concinna	Common Coast ranges. Petals 3-lobed, lobes nearly equal.
583.	Clarkia Breweri	Mt. Diablo range, rare. Flowers fragrant like honeysuckle. Petals deeply 2-lobed with a tooth between.
584.	Clarkia pulchella	Frequent in northwest. In cultivation.

BOISDUVALIA

The most striking thing about this genus is the stiff series of spathe-like bracts on the long slender spike-like inflorescence. Flowers small, not attractive, white to rose-color.

585.	Boisduvalia bipartita	Alameda County. Petals white, deeply parted into two unequal lobes,
586.	Boisduvalia densiflora	Widely distributed, Coast and Sierras. Spikes dense. Petals rose-color. Variable; many of the variations have been described as species.
587.	Boisduvalia campestris	Interior valley.
588.	Boisduvalia stricta	Lower Sacramento Valley.
589.	Boisduvalia glabella	Eastern Sierras.
590.	Boisduvalia cleistogama	An interesting species resembling Godetia and Gaura. Dry beds of pools. Sacramento Valley.
591. Small Flowered Guara	Gaura parviflora	Deserts, southeastern California.
592. Weedy Guara	Gaura sinuata	Troublesome weed. Ventura County.
593.	Heterogaura Californica	Sierras.
594. Enchanters' Nightshade	Circaea Pacifica	

From the name we would expect something unusual or mystical about this pretty little flower. There is nothing evil about it, however, except that it prefers to grow in dark, damp, shady places in the woods. The plant does not resemble the other members of the family and one may find it a little difficult to identify. It is a perennial with short rootstocks and forming a mass of foliage about a foot high. The leaves are thin, smooth and heart-shaped. The flowers are small and white and arranged in a delicate terminal spray. The pendant fruits are pear-shaped and covered with bristly hooked hairs.

Rare in the Bay region, but not infrequent in the Sierras and the northwestern counties. Two related species, *C. Lutetiana* and *C. alpina* occur in the eastern states and in Europe.

BLAZING STAR FAMILY LOASACEAE

Erect annuals or biennials, some of them quite handsome, with stinging or rough hairs and adapted to dry hillsides and valleys.

595. Blazing Star	Mentzelia laevicaulis	The name describes it. Truly a blazing yellow star with very large, light yellow blossoms centered by numerous long and conspicuous stamens. A stout branching plant with shining white stems and tooth leaves. Dry stream beds and various Coast ranges and Sierras.
596.	Mentzelia micrantha	Smaller flowered, not particularly attractive. Well described in the local floras of the Coast region.
597.	Mentzelia dispersa	
598.	Mentzelia affinis	
599.	Mentzelia gracilenta	
600. Bartonia	Mentzelia Lindleyi	
601.	Mentzelia congesta	Petals bright orange. Eastern Sierras. Rare.
602.	Mentzelia tricuspis	Plants about 6 inches high, stout, coarsely toothed leaves. Flowers large. Near San Bernardino and southward in the deserts.
603.	Eucnide urens	Resembles Mentzelia. Stout, low, numerous stinging hairs, flowers large, yellow. Desert region, southeastern California.
604.	Petalonyx Thurberi	Perennial, rough, with barbed hairs, shrubby at base. Flowers small, in terminal clusters. San Bernardino and south through the desert region. Common.

CUCUMBER FAMILY CUCURBITACEAE

605. Chili Cojote — Curcubita foetidissima perennis

Large roots; stems creeping and rooting; triangular heart-shaped leaves; flowers large, violet-scented; fruit globose, two or three inches in diameter, smooth, yellow, filled with a bitter pulp. Pulp of immature fruit used with soap to remove stains from clothing. Medicinal. Seeds eaten by Indians. San Joaquin Valley southward.

606. Desert Mock Orange — Curcubita palmata — Leaves thick, divided into 5 lobes, flowers small, fruit round like an orange when ripe. Salton Sink and southeastern deserts.

607. Common Man Root — Echinocystis fabacea

Very large roots, hence the name "Man Root". Long trailing stems. Clusters of small greenish-white flowers. Spiny fruits which contain seeds not unlike a hazelnut in size and shape. The herbage is disliked by stock and the roots are very difficult to eradicate, sending up new leafage from the root when cut off.

Quite variable, so that the forms are considered species by some authors.

Hilly sandy lands, Coast ranges and interior valley.

608. Hill Man Root	Echinocystis marah	Similar, but flowers clear-white and fruits with short and weak spines instead of stout ones. Hills, Bay region among strawberry.
609. Watson's Man Root	Echinocystis Watsoni	Vaca Mountains only, near Bay region. Sierras.

DATISCA FAMILY DATISCACEAE

A small and peculiar family represented by but a single genus with two species, one in western Asia, the other Californian.

610. Durango Root	Datisca glomerata	Stout branching perennials, several feet high with coarsely - toothed leaves, these becoming shorter and more numerous toward the inflorescence. Flowers small clustered in the axils and more or less hidden by the leaves. Root medicinal, bitter tonic. On dry stream beds and banks, Coast ranges and Sierras.

CACTUS FAMILY CACTACEAE

Mostly leafless plants with the stems thickened into various shapes and armed with almost every conceivable sort of big and little spines. Some are very large in single or branching columns, others globe-shaped and ribbed, and still others jointed and flattened. Unusual prominence has been given some of the species on account of the introduction of spineless varieties by Luther Burbank and the United States Department of Agriculture for forage purposes. They contain an insipid juicy pulp which on the desert is used in extreme cases as a poor substitute for water. The fruit is usually pulpy and contains many seeds. These are used to a considerable extent by the Mexican peons for food and are called tunas. The surface is frequently covered with minute spicules not apparent to the eye, and much discomfort is brought on when an attempt is made to handle or eat the inviting looking fruit without first removing the outer skin with something other than the bare fingers.

In New Mexico, Arizona and Texas, the spines are removed by burning if stock feed is short, when they can be readily eaten. It is at best, however, a poor forage.

The flowers are very beautiful, consisting of numerous colored sepals and petals arranged in series. They may be yellow, pink or red.

611. Bird's-Nest Cactus	Mamillaria	Oval or cylindrical with spine - bearing tubercles. Perhaps 4 species. Southern California, from the coast to the interior.
612. Indian Melon	Echinocactus	Globe shaped with tuberculate ribs. Woolly on top. Bunches of spines on the more or less vertical ribs. About 7 species from the coast to the interior.

613. Giant Cactus — Cereus — Plants of all sizes, low or climbing or erect. Some 20 feet or more in height with branches. Cylindrical ribbed stems. The flowers of some open only in sunlight, others only at night. Fruit of some highly prized by Indians. About 6 species. Southern California from the coast to the interior.

614. Jointed Cactus — Opuntia

A very large genus and unlike the others extending far up into the cold north in California and Nevada. The stems consist of flattened or cylindrical joints which have small round subulate leaves at first, but which soon drop off. Numerous short, easily detached bristles and sometimes also stouter spines in addition, all barbed. Flowers on the joints of the preceding year, mostly large, open only in sunlight. Fruit often edible and produced in large quantities.

About twenty species from San Diego to the interior, a few extending along the eastern base of the Sierras to Oregon.

PARSLEY FAMILY UMBELLIFERAE

A very large family with about thirty genera occurring in California. Very few of them are sought after for their beauty and many are ill-smelling. From an economic standpoint the family is important as it includes the parsnip, carrot, celery, parsley, dill, fennel, caraway, and anise.

On the other hand, the roots and young leaves of several of the genera are exceedingly poisonous and have caused much stock poisoning and a considerable number of human lives either by accident or with suicidal intent.

The family is a difficult one to deal with unless one has good, mature fruit. The differentiation of the genera is based on the character of the fruit and the number and arrangement of longitudinal canals between the ribs, containing aromatic oil and generally spoken of as oil-tubes. These are best seen by making transverse sections through mature fruits. Stems usually hollow. The leaves are mainly compound and these again divided into leaflets which may be slightly or finely divided, or variously lobed. The petioles of the leaves expand into a sheath-like structure at the base.

The flowers are arranged in simple or compound umbels. The bracts under the main umbel form an involucre and those under a secondary umbel or umbellet form an involucel. Individual flowers are usually very small and may be white, greenish-white, bluish, yellows of many shades, and reddish-brown.

The family is widely distributed from the ocean cliffs to middle elevations in the Sierras, but we do not recall many in the high Sierras.

615. Water Pennywort — Hydrocotyle ranunculoides — Umbels simple, fruit without oil tubes, very small, carpels not separating, ribs obscure; creeping, aquatic or semi-aquatic plants with round lobed leaves; fruit ovoid. Bay region and south.

616. Marsh Pennywort — Hydrocotyle prolifera — Similar, but umbels in whorls. Fruit small, but with two prominent ribs on each side. Bay region southward in marshes.

617.	Bowlesia lobata	Delicate annuals with simple umbels, flowers white, minute. Fruit small, without ribs or oil-tubes. Damp, shady rocks or banks. Coast ranges and Sierras.
618. Coyote Thistle	Eryngium armatum	Prickly herbs, flowers greenish-white or bluish in dense peduncled heads; fruit covered with hyaline scales. Spiny bracts which hurt feet of dogs. Weeds in pastures. Moist places. Coast Ranges and interior valley.
619.	Eryngium vaseyi	
620.	Eryngium Californicum	
621.	Eryngium articulatum	
622. Sanicle	Sanicula arctopoides	Smooth perennials with lobed leaves more or less divided. Flowers yellow. Fruit densely covered with hooked prickles. Some, if not all, of the species poisonous to stock, particularly horses. Coast Ranges and interior valley. 629 in Indian Valley, Plumas County.
623.	Sanicula menziesii	
624.	Sanicula maritima	
625.	Sanicula laciniata	
626.	Sanicula bipinnatifida	
627.	Sanicula bipinnata	
628.	Sanicula tuberosa	
629.	Sanicula nevadensis	
630.	Velaea Hartwegi	Smooth, erect, perennial herbs with pinnate and bipinnate leaves, yellow flowers in large umbels. Fruit oblong, elliptical or orbicular, compressed, oil-tubes 2 or 3. Conspicuous. Coast Ranges and upper interior valley. 632, Southern California near coast.
631.	Velaea Kelloggii	
632.	Velaea arguta	

633. Poison Hemlock — Conium maculatum

Tall smooth biennial, stems dotted with purple marks. Leaves compound and finely dissected. Flowers white in compound umbels. Fruit broadly ovate, somewhat compressed, oil-tubes none.

Introduced. Bay region and elsewhere. Weed. Unpleasant odor; not liked by stock. Roots poisonous. Useful medicine extracted from it.

634. Common Celery	Apium graveolens	Escape from gardens. Marshes, San Francisco to San Diego.
635. Wild Celery	Apiastrum angustifolium	Small branching annual with dissected leaves and small white flowers. Fruit small, heart-shaped, roughened, ribs inconspicuous, oil tubes solitary in the intervals, 2 on the face. Coast, San Diego to Mendocino.

636. Indian Potato	Carum Gairdneri	A conspicuous foothill species in open places among sagebrush, eastern Sierras and elsewhere. Tuberous roots one or two inches long and slender. Formerly used extensively by Indians for food. Leaves and flowers a favorite sheep feed. Erect stems with scanty leafage. Umbels of white flowers forming clusters 1 to 2 inches across. Fruit ovate, compressed, ribs somewhat obscure, oil-tubes solitary in the intervals.
637.	Carum Kelloggii	A stouter plant with larger flowers and fruit. Very common, open hills, Bay region.
638. Pimpinel	Pimpinella apiodora	Smooth perennials, with pinkish flowers. Fruit broadly ovate, small, somewhat prominent ribs, oil-tubes numerous. Rocky places about San Francisco and northward.
639. Water Parsnip	Berula erecta	Tall perennial marsh plant with pinnate leaves, leaflets 9 to 19 and 1 to 2 inches long. White flowers; fruit round, very small, ribs nerve-like, oil-tubes numerous. Sparingly from San Francisco to Los Angeles.

POISON PARSNIPS OR WATER HEMLOCKS CICUTA

Smooth, tall branching perennials found in marshes, along creeks and banks of irrigation ditches and never away from water, at least during some period of the year. Some of the species occur in Europe where they have long been recognized as poisonous. The roots contain a virulent poison, especially in winter and early spring. During the summer the food material in the root is used up in the growth of the plant above ground, disseminating the poison over a large leaf surface and in this way diluting it. In any event stock can eat the fairly mature plants without any ill effects in late summer.

The plants look so very much like many other plants in the family that are harmless, that considerable difficulty is experienced in identification unless fruits are accessible. Stout hollow stems.

Large umbels of white flowers. Fruit small and nearly round, ribs broad, obtuse and corky.

When fruits are not available, by digging up the plants and cutting up the root, a series of partitioned hollow chambers will be found. This character identifies the genus Cicuta with a reasonable degree of certainty, but not absolutely.

640. California Poison Parsnip	Cicuta virosa, var. Californica	Bay region.
641. Bolander's Poison Parsnip	Cicuta Bolanderi	Suisun and other marshes.

642. Oregon Poison Parsnip	Cicuta vagans	Abundant along Truckee river as far as Truckee from the Nevada line.
643. Water Parsnip	Sium cicutaefolium var. heterophyllum	Perennial aquatic or marsh plant with fibrous, fleshy roots, and angled stems, pinnate leaves and serrate or divided leaflets; flowers white; fruit small, ovoid, with acute, prominent ribs. Suisun marshes and elsewhere.
644. Sweet Cicely Orris Root	Osmorrhiza brachypoda	Perennials with thick aromatic roots familiar to mountaineers who chew them. Large compound leaves and umbels of white flowers. Fruit linear oblong; oil-tubes none. Coast Ranges and Sierras. No. 646 frequent in Sierras and much relished by grazing animals.
645. Common Sweet Cicely	Osmorrhiza nuda	
646. Sierra Sweet Cicely	Osmorrhiza occidentalis	
647.	Osmorrhiza ambiguum	
648.	Osmorrhiza Bolanderi	
649.	Oenanthe Californica	Tall, glabrous aquatic, sometimes producing aerial bulblets or slender branchlets. Leaves bipinnate. White flowers. Fruit oblong to globose, ribs rounded and corky, oil-tubes at the angles. Shallow pools Coast Ranges south.
650.	Oenanthe sarmentosa	Similar. Leaves simply pinnate. Rare. Monterey and north. Succulent stems like celery and eaten by Indians.
651.	Ligusticum apiifolium	Tall smooth perennial, leaves ternate or biternate, the divisions pinnate or bipinnate. Flowers white. Fruit oval, 2 lines long. Oil-tubes present. Sierras, but obscure.
652.	Selinum Pacificum	Similar to the last, but fruit more prominently winged. Oil-tubes solitary and conspicuous. Rare. Bay region—Marin county.
653.	Selinum capitellatum	Umbels composed of many dense globose umbellets of white flowers. Sierras by streams. Common.
654.	Angelica Breweri	Fruit ovate, strongly flattened, distinct wing. Tall perennials. Flowers white or pale-purple. Sierras frequent.
655.	Angelica Hendersonii	Along the coast.

656.	Angelica tomentosa and vars.	Coast Ranges.
657.	Angelica lineariloba	High Sierras, Mono Pass.
658.	Leptotaenia Californica	Leaves lobed or parted. Fruit oblong strongly flattened oil-tubes present. Coast Ranges.
659.	Leptotaenia dissecta	Leaves much dissected. Flowers yellow or purplish. Fruit oblong; oil-tubes obscure. Sierras. Common.
659a. Sierra Carrot	Leptotaenia multifida	Root very large. Eastern Sierras. Good forage.
660.	Cymopterus terebinthus	Thick root, very short stem, flowers yellow. High Sierras. Roots eaten by Indians.
661.	Cymopterus cinerarius	Flowers purplish, alpine, high Sierras.
662.	Cymopterus nevadensis	

WILD PARSLEY PEUCEDANUM

Low perennials with tapering or tuberous roots. Umbels mostly without involucres, leaves pinnate to much dissected. Flowers yellow or white. Fruit roundish, much flattened. Ribs with broad thin wings. Roots eaten by Indians.

The leaves of many species of this genus have been held under suspicion by stockmen as being poisonous, but no experiments have been conducted to prove or allay the suspicion.

663.	Peucedanum leiocarpum	
664.	Peucedanum parvifolium	
665.	Peucedanum Hassei	
666.	Peucedanum macrocarpum	Coast Ranges and interior valley, some extending to the Sierras.
667.	Peucedanum dasycarpum	
668.	Peucedanum Vaseyi	
669.	Peucedanum utriculatum	
670.	Peucedanum caruifolium	
671.	Peucedanum triternatum	
672.	Peucedanum Euryptera	Gravelly hills, San Diego.
673.	Peucedanum ambiguum	Northeastern California.
674.	Peucedanum villosum	Northeastern California.
675.	Peucedanum multifolium	Northeastern California.
676.	Peucedanum Nevadense	Northeastern California.
677. Cow Parsnip	Heracleum lanatum	

A tall perennial with very large lobed leaves, coarse stems and umbels of white flowers. Large, broadly ovate, flattened and slightly pubescent fruits.

A conspicuous plant in wet soils along ravines, both in the Coast Ranges and at middle elevations in the Sierras. Eaten by stock. Indians used the inside portion after peeling off the outside layers of the stems.

678. Native Carrot or Yerba del Vibora	Daucus pusillus	Hispid annual or biennial, with very finely divided leaves, whitish flowers and fruits with short bristles and barbed prickles on the ribs. Widely distributed.
679. Garden Carrot	Daucus carota	Escaped. Rays of umbels curving inward so as to resemble a bird's nest. Flowers white or occasionally pinkish. Naturalized in valley lands as a weed.

680. Wild Parsnip	Pastinaca sativa	Escaped and often a common weed near towns. Tall. Yellow flowers, fruit large, smooth, much flattened and winged.
681. Shepherd's Needle	Scandix pecten-veneris	Named from the fruit which is long and tapers to a point like a packing needle. Clusters of tiny white flowers and finely divided bright green leaves. Introduced weed, common in Bay region.
682.	Coleopleurum maritinum	Very large plant. Rare. Northwest coast, California. Probably poisonous.
683. Bull-wort	Ammi majus	Weed, from Europe. Low places in grain fields and brackish meadows.
684. Hedge Parsley	Caucalis microcarpa	Widely distributed, but not common. Coast Ranges and Sierras.
685. Knotted Hedge Parsley	Caucalis nodosa	Weed from Europe. White or reddish flowers in small round clusters. Shady places, Coast Ranges. Fruit ovoid or oblong, flattened, ribs covered with barbed and hooked bristles of various lengths.

GINSENG FAMILY ARALIACEAE

The best known member of this family is the English Ivy occurring in many varieties in cultivation and becoming semi-wild around the Bay, climbing high up into the trees.

The next most important members are the Ginsengs or Spikenards. These resemble the Umbellifers, but have solid stems and berries. Our species is closely related to the cultivated Ginseng, *Panax quinquefolium* which is a difficult plant to grow, but exceedingly profitable. The root stocks are used extensively by the Chinese.

686. Spikenard or Ginseng	Aralia Californica	Shaded canyons in rich soil, Coast Ranges and Sierras. Tuberous roots, whitish flowers, berries red, later black.

DOGWOOD FAMILY CORNACEAE

Frequent inhabitants of our moist canyons. Some of them very striking in winter, due to the coloring of the stems. Many are cultivated for ornament. The bark is bitter and has been used as a substitute for cinchona.

687. Bunch Berry	Cornus canadensis	Flowers greenish, in a close head, surrounded by 4 to 6 white petal-like bracts, fruit red. Coast Ranges.
688. Nuttall's Dogwood	Cornus Nuttallii	

689. Common Dogwood	Cornus pubescens var. Californica	Flowers white or cream colored, without involucre, fruit white, lead-colored or blue. Coast Ranges and Sierras.
689a.	Cornus glabrata	
689b.	Cornus Torreyi	
690.	Cornus sessilis	Placer County. Rare. Flowers yellowish, appearing before the leaves.
691. Silk-Tassel Tree	Garrya elliptica	A small evergreen tree or shrub, leaves smooth above and woolly beneath. Branchlets 4-angled. Flowers in catkins like the poplar. Fruit round and silky-woolly. Coast Ranges.
692. Bear Brush	Garrya Fremontii	Fruit glabrous. Coast Ranges and Sierras.
693.	Garrya buxifolia	Slender catkins, a smaller shrub, leaves silky beneath, fruit nearly sessile. Mendocino county.

HONEYSUCKLE FAMILY CAPRIFOLIACEAE

Shrubs or twining vines, many of them well known in land out of cultivation, as the elderberry, snowball, snow berry and honeysuckles.

694. Elderberry	Sambucus glauca	Large shrub or sometimes tree-like. Stems pithy and easily broken; large odd-pinnate leaves. White clusters of flowers flat-topped. Berries blue with whitish bloom. Used for pies and otherwise. Coast Ranges, interior valley and Sierras.
695.	Sambucus racemosa and var.	Clusters of flowers round-topped, flowers dull-white, berries scarlet or black, no bloom.
696. Arrow-wood	Viburnum ellipticum	Shrub, relative of the Guelder Rose, snow ball and cranberry tree. Simple, coarsely toothed leaves. Dense cluster of flowers. Fruit oval, black, half an inch long. Woods, Mendocino County.
697. Twin-Flower	Linnaea borealis and var.	

This delicate little trailing and rooting evergreen plant is found in moist woods from the New England States across the continent, especially among evergreens. The flowers are in pairs, rose-colored, and very fragrant, later forming a dry berry. It is not common in the State, and much joy and pride comes over the naturalist when discovering it. Northern counties and Sierras.

SNOWBERRY SYMPHORICARPOS

Low branching shrubs with the white or pinkish flowers in short spikes or clusters, later forming globose berry-like fruits. Many of the berries are fleshy and snow-white. Good browse.

698. Snowberry	Symphoricarpos racemosus	Berries mostly smooth. Throughout California.
699. Dwarf Snowberry	Symphoricarpos mollis	Coast Ranges and Sierras. Leaves pubescent.
700. Round-leaved Snowberry	Symphoricarpos rotundifolius	Eastern Sierras.
701. Indian Currant	Symphoricarpos oreophilus	Common, Eastern Sierras.

HONEYSUCKLE; WOODBINE LONICERA

Erect shrubs or twining vines, well known in cultivation. The native shrubby species are considered poisonous by sheepmen.

702. Black Twin-berry	Lonicera involucrata	Erect shrub, Coast Ranges and Sierras.
703.	Lonicera conjugialis	
704.	Lonicera coerulea	
705. California Honeysuckle	Lonicera hispidula and vars.	Coast Ranges and Sierras.
706. Chaparral Honeysuckle	Lonicera interrupta	
707.	Lonicera ciliosa	

MADDER FAMILY RUBIACEAE

A very important economic family. Furnishes the madder plant, *Rubia tinctoria*, one of the most important of dyes; the coffee plant, *Coffea arabica;* Peruvian bark, a powerful febrifuge, from several species of Cinchona; Ipecacuanha, commonly called "epecac" which children learn to know, from the root of *Cephaelis Ipecacuanha.*

BEDSTRAW OR CLEAVERS GALIUM

Recognized by their series of whorled leaves and square stems, some shrubby, and others partially climbing or trailing. They are roughened by minute bristles causing them to adhere tenaciously to clothing. Annuals or perennials with dry or fleshy fruits Both in Coast Ranges and Sierras.

708. Common Cleavers	Galium aparine	Annual; fruit dry.
709. Corn Cleavers	Galium tricorne	Introduced from Europe. Annual; fruit dry.
710. Wall Cleavers	Galium Parisiense	Introduced from Europe. Annual; fruit dry.
711. Sweet-scented Cleavers	Galium triflorum	Perennial; fruit dry.
712. Dyers Cleavers	Galium trifidum	Perennial; fruit dry.
713. California Cleavers	Galium Californicus	Leaves in whorls of 4, berry-like fruits.
714.	Galium Nuttallii	
715.	Galium Bolanderi	
716.	Galium Andrewsii	
717. Field Madder	Sherardia arvensis	Resembles Galium, but a small plant. Leaves in whorls of 6. Lilac blossoms in clusters at the end of the stems. Introduced. Weed in lawns Berkeley and elsewhere.

718. Kelloggia galioides — Named for Dr. A. Kellogg, the pioneer botanist of the California Academy of Sciences. A slender perennial with opposite, sessile leaves, small pinkish or white flowers at the ends of forking branches. Fruit small, oblong with hooked bristles. Frequent in damp, shady places in the Sierras, at middle elevations.

719. Button Bush or River Ball-Flower Tree — Cephalanthus occidentalis — Spreading shrub or tree, not uncommon along the streams of the interior valley. Flowers white in a dense round head about an inch across.

VALERIAN FAMILY VALERIANACEAE

To this family belongs the cultivated valerian, *Valeriana officinalis,* a well known medicinal plant, readily cultivated everywhere. The rhizomes and roots are highly valued as a nerve sedative.

720. Valerian — Valeriana sylvatica

A native species found in moist soil in the Sierras with strong scented, perennial roots used by Indians for food. Leaves near the base mostly entire, those of the stem mostly pinnate, with three to eleven toothed leaflets. Flowers white or flesh-colored. Fruit forms with the calyx at maturity a conspicuous plumose crown. Extremely variable, only a few inches tall in the highest mountains to two feet at middle elevations. Sierras.

721. Valeriana edulis — To be looked for in northeastern California.

PLECTRITIS (VALERIANELLA)

Annuals nearly smooth with slender, erect stems which bear oblong sessile leaves with dense clusters of small white or rose-colored flowers in the upper axils, forming an interrupted spike or head. The identification of the species of the genus is mainly based on the character of the fruit and the position of its wings which curve inwards, making it saucer-shaped.

The species are not yet well defined and ample specimens in good fruit with notes would be welcomed by the botanists.

722. Plectritis macrocera and var. — Low grounds, coast and valleys. Slender, less than a span high.

723. Plectritis congesta — A succulent annual, 6-12 inches. 4-angled stems, erect. Eastern Sierras in shade of sagebrush and rocks.

Other species given by Jepson as from the Coast Ranges are: P. samolifolia, P. Jepsonii, P. glabra, P. magna and P. Davyana.

TEASEL FAMILY DIPSACEAE

724. Fuller's Teasel Indian's comb — Dipsacus fullonum

Conspicuous coarse biennial plants, two to four feet high, with prickly stems, pinkish-white flowers in a cylindrical head, which later becomes a rigid spike covered with strong recurved spines. Used at one time for carding wool. Common

in waste places about the Bay and along railroads. Near towns in the interior valley. Gathered in late fall for home decoration and sometimes dyed various colors and sold by the florists. Introduced.

725. Common Teasel	Dipsacus sylvestris	With straight spines to the fruits. Introduced. Bay region.

SUNFLOWER FAMILY COMPOSITAE

A very large family of plants abundantly represented in the west. In California there are at least 125 genera with more than 500 species. It contains few plants that are cultivated on a large scale as farm crops.

Among the vegetables the most important is the lettuce, followed by the Globe or Thistle Artichoke, the Salsify or Vegetable Oyster, and the Jerusalem Artichoke for its tubers.

The Sunflower is grown for its seed, which is used for poultry, birds and for oil. A few are medicinal as the wormwoods, chamomile, dandelion, Gum plant, Pine-apple weed, Tansy, Burdock, Yarrow, Blessed Thistle, Thoroughwort or Boneset, Horse weed or Fleabane, Pyrethrum the well known vermifuge, Chicory for use with coffee, Saffron for dyeing, and others.

In hardy, easily grown ornamental plants for the garden the family presents an almost endless variety. Among the well known kinds are Sunflowers, Shasta daisies, Michaelmas daisies, Asters, Golden rod, Daisies, Dahlias, Zinnias, Marigolds, Chrysanthemums, Senecio, Everlastings, Coreopsis, Calendula.

It is safe to say that more of our weeds belong to this family than to any other. Most of them are introduced and number about forty different kinds. The following are well known, Napa Thistle, Star Thistle, Tarweeds, Canada Thistle, Milk Thistle, May weed, Dog fennel, Pitch forks, Death weed, Wild lettuce, Coast dandelion, Bristly ox-tongue, Groundsel, Sow-thistle, Cocklebur and lawn dandelion.

The family comprises annuals and perennials, many of them shrubby. The flower stalk is enlarged at the end in many different ways so as to form a flat, convex or concave receptacle on which few or many flowers are closely placed, appearing as a head. This is usually surrounded by a series of bracts showing many different characteristics as to size and shape and on which much of the classification of the family is based. The flowers may be of two kinds in the same head or one kind only may be present. One kind of corolla is spoken of as tubular as they are in the form of a tube which may be variously lobed or toothed on the upper end of the tube. The other is called ligulate, meaning strap or tongue-shaped. As the corolla fades the calyx unites with the ovary and becomes prominent, forming at the apex an achene, the so-called seed, a structure called the pappus, which consists of scales, hairs or awns varying in number from a few to many, and presenting almost every degree of texture from very fine, soft and downy to broad and stiff. In some the pappus is reduced to a mere ring or absent altogether. Sometimes there are also bracts or scales on the receptacle interspersed between the flowers. When the receptacle has only flowers and no scales within the involucre, it is called naked, but when scales are present on the receptacle among the flowers, it is called chaffy.

The necessity of procuring some of the specimens at least in the advanced stage of flowering is emphasized as the pappus is a very important character in the determination of the plants belonging to this family.

Yellow is perhaps the most frequent color of the flowers, but all sorts of colors are represented.

The family as represented is divided into twelve tribes. Some authors separate these tribes and place them in families by themselves which has the disadvantage in that if families are placed alphabetically in a herbarium they may be widely separated from their nearest relatives.

We will now mention as many of the species of the genera occurring in the State as time and space will permit.

JOE-PYE WEED TRIBE EUPATORIEAE

726. Western Joe-Pye Weed	Eupatorium occidentale	Perennial, almost shrubby base, a foot or two high. Flowers pinkish, clustered at ends of branches. Pappus a single series of numerous, rather rigid capillary bristles. Heads 15-25 flowered. Eastern Sierras, Donner Lake, etc.
727.	Eupatorium glandulosus	Rare. Pasadena. Probably introduced from Mexico.
728. Canyon Surprise	Hofmeisteria pluriseta	Somewhat shrubby, insignificant as to flowers, but herbage delightfully fragrant. Cliffs in canyons of hot desert regions. Southeastern California.
729.	Malperia tenuis	An erect desert annual. Receptacle naked, flat, achenes 5-angled, slender. Pappus of 3 bristles and minute scales. San Diego county.

Brickellia (Coleosanthus)

Shrubby perennials, heads medium five to fifty flowered, in terminal clusters. Receptacle naked, whitish. Achenes 10-ribbed. Pappus a single series of scabrous or pulmose capillary bristles

730.	Brickellia atractyloides	Rocks in desert ranges. San Bernardino and San Diego counties.
731.	Brickellia incana	Dry gravelly soil of the Mojave Desert.
732.	Brickellia linifolia	Deserts, southeastern California
733.	Brickellia frutescens	San Diego County.
734.	Brickellia Nevinii	Coastal slope, Pasadena and south.
735.	Brickellia Californica and var.	Gravelly stream beds and chaparral slopes, San Diego to Mendocino, inner Coast Ranges and foothills of the Sierras.
736.	Brickellia Greenei	Siskiyou County.
738.	Brickellia grandiflora	Rocky banks of streams in the Sierras.
739.	Brickellia microphylla	Mt. Tallac, Lake Tahoe.

ASTER TRIBE ASTEREAE

Little Rabbit Brush Gutierrezia

Low shrubs with wiry stems, narrow often spirally curved leaves and clusters of numerous yellow flowers terminating the branchlets. Achenes angled or ribbed and pubescent. Pappus of four to fifteen oblong erose scales. Receptacle flat.

Common shrubs of desert and dry foothill regions. Not liked by stock and hence remain in abundance over sheeped areas. Stems readily withstand trampling, springing back again into place. Grow on poorer and more gravelly soil than the true sagebrush and spread more readily over burnt areas. Conspicuous in the fall.

740.	Gutierrezia lucida	Dry hills of the Mojave Desert.

741.	Gutierrezia Sarothrae	Common, Southern California.
742.	Gutierrezia Californica and var.	Dry hills Colorado Desert to San Francisco Bay region.
743.	Amphiachyris Fremontii	A low and much branched smooth shrub with nearly sessile leaves and yellow flowers. Pappus of about 20 flattish more or less tortuous toothed bristles. Involucres hardly a quarter of an inch long, of 7 to 9 oval thin scales with greenish tips. A peculiar shrub of the southeastern desert region. Inyo County.

GUM PLANT GRINDELIA

Perennials, almost shrubby, leaves more or less covered with a sticky excretion which gathers the dust, making the plants unsightly. Heads gummy, of medium size, solitary or in few-flowered clusters at the ends of the leafy branches. Flowers yellow with conspicuous rays. Achenes short, flattened and smooth. Pappus of two to eight awns or small scales which readily fall off.

In the center of the head when young one frequently sees a peculiar white sticky exudation.

The Grindelias are frequently seen along our roads in the hills and valleys. A decoction made by extracting some of this sticky material with alcohol is said to be a remedy for Poison Oak. Leaves and flowering tops gathered when young and quickly dried are worth five to ten cents per pound.

744. Common Gum Plant	Grindelia robusta and vars.	Common. Coast Ranges and Valleys.
745. Desert Gum Plant	Grindelia camporum	Dry soils, San Joaquin Valley south.
746. Saline Gum Plant	Grindelia cuneifolia	Salt marshes. Coast and interior Bay region.
747. Red-stemmed Gum Plant	Grindelia rubricaulis	Ridges and hillsides of the Coast Ranges.
748. Broad-leaved Gum Plant	Grindelia squarrosa	Weed, waste places and roadsides.
749.	Acamptopappus sphaerocephalus	

Smooth low shrub, with rigid angular straggling branches, narrow leaves and light yellow flowers. Pappus of thirty to forty silvery awns.

Not uncommon in the southeastern California Desert Region.

750.	Acamptopappus Shockleyi	Inyo Mts., southeastern California .

PENTACHAETA

Low slender annuals with very narrow leaves and medium sized heads of white, yellow or pink flowers, or the center portion turning purple. Achenes oblong, flattened, hairy. Pappus of three to twelve slender bristles which may be much reduced or absent altogether.

751.	Pentachaeta aurea	San Diego and adjacent desert region.
752.	Pentachaeta exilis and vars.	Coast Range hillsides. Middle California.
753.	Pentachacta Lyoni	San Pedro, Los Angeles County.

754.	Pentachaeta alsinoides	Coast Ranges and perhaps also Sierras. Pappus bristles, very slender.
755.	Monoptilon bellidiforme	Depressed desert annual, with white flowers having a central yellow disk like a daisy. Receptacle slightly convex, naked. Achenes narrowly obovate, flattened, pubescent. Pappus a mere crown and a solitary, short plumose bristle Deserts southeastern California.
756. Desert Aster	Monoptilon bellioides	Similar, but the pappus consists of 3-12 scales and 1-12 slender bristles. Common in sand soil of the southeastern deserts, springing up after rains.

LESSINGIA

Annual or biennial. Slender branches clothed when young with a more or less deciduous wool. Heads rather small, five to twenty-five flowered. Flowers yellow, purplish or white. Achenes wedge-shaped, more or less flattened. Pappus of numerous unequal scabrous bristles which usually turn reddish-brown.

757.	Lessingia Germanorum	Sandy hills along the coast. Flowers yellow.
758.	Lessingia glandulifera	Conspicuously glandular and heavy scented or without odor or glands. Flowers yellow. Middle California southward.
759.	Lessingia heterochroma	Dry soil, Ventura county. Flowers pink.
760.	Lessingia ramulosa and var.	Flowers purplish, lilac to white, achenes less flattened, 4-5 nerved. Coast Ranges and Interior Valley.
761.	Lessingia virgata	
762.	Lessingia leptoclada	
763.	Lessingia hololeuca	
764.	Lessingia adenophora	
765.	Lessingia nana	
766.	Lessingia albiflora	
766a.	Lessingia Lemmonii	
767.	Heterotheca grandiflora	

A coarse biennial or perennial from one to several feet high with the leaves and stems clothed with long and rather soft spreading hairs. Medium sized yellow flowers in a terminal spreading cluster. Ray-achenes without pappus, Disk-achenes flattened, silky hirsute, with a double pappus, inner ones copious and long, outer ones short and stout.

A common weed along ditches and waste places in southern California, extending to the Bay region as an immigrant.

GOLDEN ASTER CHRYSOPSIS

Rather low perennials with leafy stems and medium sized leaves. Flowers with or without rays, yellow. Achenes flattened Pappus brownish and consisting of numerous very slender bristles with or without a short row of small scales.

768. Hairy Golden Aster	Chrysopsis villosa and vars.	Many varieties, each in its region. Some one or other found in nearly all parts of the State. Weedy tendencies.
769.	Chrysopsis Oregana and var.	Gravelly beds of streams. Coast Ranges.
770.	Chrysopsis Wrightii	Rare. 11,400 ft. San Bernardino Mts.
771.	Chrysopsis Breweri	Sierras, under the pines.

772. **RAYLESS GOLDEN ROD OR RABBIT BRUSH**
CHRYSOTHAMNUS

A difficult group of plants to classify and yet in some regions they cover considerable areas, looking not unlike sagebrush before the yellow clusters of flowers in the fall indicate the difference. They belong more especially to the Great Basin region and enter California at the south and abundantly on the eastern side of the Sierras, both in the foothills and along the flats near creeks in the valleys. The genus has been variously treated by the different authors, using many different generic names such as *Bigelovia, Aplopappus, Linosyris, Chrysoma, Chryscoma, Crinitaria,* and others. For this reason we will not attempt to give the names. Hall gives 7 species with many varieties in southern California. Jepson does not include any in his "Flora of Middle Western California."

When the species are more thoroughly known and studied there will probably be in the neghborhood of twenty species and many varieties, or many more species if the varieties are given specific rank.

The herbage is not liked by stock and seldom eaten, although it is tender compared to sagebrush and many other plants. A strong growth of Rabbit brush usually indicates a heavier soil than sagebrush and one in which the water table is nearer the surface. They do not necessarily indicate alkali lands, but are found on the margins where the soil is nearly free from alkali. The yellow masses that one sees in desert regions in the sagebrush area are nearly sure to be caused by either the Rabbit brushes or the little Rabbit brushes (*Gutierrezia*).

Chrysothamnus is shrubby, variable in height up to four feet with narrow entire leaves an inch or so long and clusters of yellow flowers terminating the branchlets. In many of them the herbage is grayish-white in color. Ray flowers uniformly lacking; disk-flowers, 5 to 30. Achenes narrow, small. Pappus of soft copious dull-white or reddish hairs.

Chiefly in the valleys and slopes of the eastern Sierras to the high mountains.

ERICAMERIA

Low evergreen shrubs with small and often heath-like leaves. Herbage sticky and dotted with glands. Flowers yellow in terminal clusters, September to November. With or without rays. Achenes slender. Pappus of dull-white or yellowish bristles turning reddish with age.

773.	Ericameria ericoides	Low heather-like shrubs, rays 5, in sand dunes along the coast from Los Angeles to beyond San Francisco.
774.	Ericameria arborescens	Leaves narrow, rays none. Mountains, Coast Ranges, but sparingly in the Sierras.
775.	Ericameria Parishii	Not common. San Bernardino Mts. and vicinity.
776.	Ericameria pinifolia	Entering into composition of chaparral along the foothills from western Los Angeles county to San Diego county.

777.	Ericameria Palmeri	Common, foothills and plains west of the mountains. Southeastern California.
778.	Ericameria Cooperi	Very rare. Mohave Desert, eastern San Bernardino County.
779.	Ericameria brachylepis	Southwestern San Diego County.

GOLDEN ROD SOLIDAGO

Stout perennials increasing by rootstocks at the base. Spreading lateral clusters of yellow flowers terminating the stems. A well known eastern genus, but not abundant in California. Heads small and numerous. Rays short, yellow. Achenes small, roundish, five to twelve nerved. Pappus bristles slender, numerous in one or two series, equal and dull-white.

780. Common Golden Rod	Solidago Californica and var.	Throughout California.
781. Coast Golden Rod	Solidago spathulata	Sandy hills near the coast from Santa Barbara to Humboldt Bay.
782. Saline Golden Rod	Solidago sempervirens	Salt marshes near the coast. Rarely collected.
783. Western Golden Rod	Solidago occidentalis	Stream beds and river banks. Coast Ranges and interior. Sierras.
784.	Solidago confinis and var.	In moist places, Los Angeles and south.
785.	Solidago elongata	Coast Ranges and Sierras.
786.	Sericocarpus rigidus	Aster-like. Disk flowers, pale yellow, and small ray flowers white. Heads half an inch or less in length. Achenes slender, clothed with fine short hairs. Pappus white, of copious capillary bristles. Donner Lake, Yosemite, Mt. Shasta and elsewhere in the Sierras.

787. CORETHROGYNE

Perennials. Aster-like. Flowering in late spring or summer. Stems and leaves covered with a cottony material when young which disappears with age. Heads solitary or in clusters. Rays violet-blue or purple, disk yellow. Achenes pubescent. Disk-pappus reddish-brown of rigid fine bristles; ray-pappus reduced or lacking.

788.	Corethrogyne filaginifolia	Hall includes under this species eight varieties, most of which were previously described as species. It occurs in numerous forms which are difficult to separate even into varieties. Throughout the State, coast and Sierras.
789.	Corethrogyne Californica and var.	Prostrate, almost matted stems. Rare. Monterey to San Diego and north to Mendocino County.
790.	Corethrogyne spathulata	North Coast Ranges.
791.	Corethrogyne leucophylla	Sand dunes at Monterey.

792. **ASTER**

A very large genus with 140 or more species in North America, and Hall describes seventeen from southern California. Jepson records four species with four varieties in the middle western California. Perhaps about thirty species in the State distributed widely, on the coast, in the marshes, on the beach sands, in the meadows of the mountains and generally throughout the State.

They are recognized as good forage, especially for sheep. The Slender Aster, *A. exilis,* is a weed along river-bottoms and waste places generally. The Wild Asparagus or Mexican Devil-weed, *A. spinosus* is a veritable pest in the southern counties, particularly Imperial Valley. It spreads readily by means of underground shoots and is difficult to eradicate.

They occur as annuals, biennials and perennials, some even shrubby. The cultivated garden China Aster, *A. chinensis* is well known and a favorite. The Michelmas Daisies are perennials also in cultivation, flowering in the autumn.

The species on exhibit will be recorded under 792 A-Z.

793. Warm Springs Aster — Brachyactis frondosa — Conspicuous, near warm mineral waters, especially by its fluffy pappus. Sierras and eastern foothills.

FLEABANE ERIGERON

Another large genus like Aster with 130 or more species and about eighty of them in North America, with perhaps thirty in California. Almost everywhere one goes he finds some species of Erigeron, either as a weed, a wild flower or as an alpine plant high up on the lofty peaks. Erigeron is chiefly distinguished from Aster by the involucral bracts which are narrow, equal and little imbricated, the scanty and fragile pappus, and by more numerous and narrower rays. Much difficulty, however, will be found in correctly determining some of the species which merge into other genera like *Conyza.* We will not attempt to enumerate the species.

An ugly plant and all too prevalent is the Horseweed, *E. canadensis.* From it is distilled a volatile oil used to deter the attacks of mosquitoes. It is also used in medicine and the dried plants are quoted at five to six cents a pound. Unfortunately stock does not like it as it contains resinous and bitter juices. The hands should be protected when pulling it, as it affects some people in a manner similar to that of Poison Ivy.

Conyza Coulteri — Erect, tall leafy stems from an annual root, pubescent and viscid, whitish flowers. Two kinds, pistillate and perfect. Achenes small, elliptic-oblong, pappus dull-white, soft. Alkaline flats, San Joaquin Valley to Mexico.

BACCHARIS

Mostly perennial, sticky shrubs or herbs with many-flowered heads, and whitish or yellowish inconspicuous dioecious flowers. Achenes small several-ribbed. Pappus in the fertile flowers of copious mostly soft and fine bristles, and in the sterile flowers less copious and often tortuous.

A South American genus with about nine species entering California through its southern border and extending up to the interior and along the Coast.

795. Mule Fat — Baccharis viminea — A willow-like shrub the foliage of which is said to be readily eaten by horses and mules. From desert to coast of southern California, and extending to San Francisco Bay region.

796. English Daisy	Bellis perennis	Introduced in gardens and escaped in several places. Used in lawns for its floral effect but not desirable. From Europe.
797.	Leucelene ericoides	A low perennial with leafy stems and woody base. Heads small and solitary. Rays white or reddish; disk flowers yellow or reddish. Pappus a single series of scabrous white bristles.
798.	Psilactis Coulteri	A leafy-stemmed desert annual, with rather small heads, herbage rough and glandular. Rays lavendar, disk flowers yellow, with 20 to 40 unequal pappus bristles. Mohave Desert region.
799.	Hazardia squarrosa	Herbage white, tomentose or glabrous, shrubby or partially so. Heads 20-40 flowered, yellow, changing to brownish-purple. Pappus reddish; 3 species. Southern California and islands off the coast.
800.	Isocoma venata and var.	Woody with rigid stems and thickish, closely sessile leaves not resinous. Achenes ribbed and silky. Pappus of numerous bristles variable in length. A variable species. Subsaline plains. Interior valley southward.
801.	Haplopappus	Annuals or perennials or low shrubs. Yellow rays. Pappus of numerous, unequal, dull-white or reddish bristles. Five species. Sierras and southern California.
802.	Stenotus linearifolius	A shrubby evergreen plant, resinous, flowers yellow. Pappus of permanently white slender bristles. Mt. Diablo Range and south to Mexico. Sierras.
803.	Townsendia scapigera	A dwarf biennial, with linear spatulate leaves and large heads of whitish or rose-colored flowers. Resembles Aster. Rare. Ft. Bidwell, Modoc county.

TRIBE 3. EVERLASTING TRIBE INULEAE

804. Salt-Marsh Fleabane — Pluchea camphorata — Annual herb, glandular, pubescent. Moist saline soil, San Diego county eastward, and salt marshes of the San Francisco Bay Region.

805. Arrow-weed — Pluchea sericea

A slender willow-like shrub soon occupying the banks of irrigation ditches in the desert regions or along streams, washes and river-bottoms. Used by settlers in various ways to screen off the intense heat of the sun and at one time for arrows by the Indians. It has weedy tendencies.

806. — Adenocaulon bicolor — Perennial, small heads of whitish flowers, achenes long, extending much beyond the involucral bracts. Woods of the Coast Ranges and Sierras.

807. — Micropus Californicus and var. — Slender and weak woolly annuals with cottony bracts on the receptacle. No pappus. Common low hills or valley land everywhere. Coast Ranges and interior valley.

808. — Micropus amphibolus — Similar but rare and little known (see Jepson, Flora of Middle Western California). Walnut Creek, Coast Ranges.

809. Psilocarphus tenellus
810. Psilocarphus Oreganus
811. Psilocarphus globiferus
812. Psilocarphus tenellus

Prostrate, woolly annuals. Bracts clothed with soft wool forming a globose head. No pappus Coast Ranges and interior valley, and south.

813. Stylocline gnaphaloides
814. Stylocline filaginea
815. Stylocline micropoides

Very low woolly annuals with small heads in clusters. On hard open ground throughout State, except high mountains.

816. Evax sparsifolia
817. Evax caulescens
818. Evax multicaulis

Dwarf, rigid, densely woolly annuals with small heads surrounded by a circle of bract-like leaves. Napa Valley, Sacramento Valley to Mohave Desert.

819. Filago Californica
820. Filago depressa
821. Filago Arizonica
822. Filago Gallica

Low woolly annuals with small heads in round clusters. Dry hills, coast, mountains to southern deserts. No. 822 St. Helena. Introduced from Europe.

823.	Antennaria dimorpha	Low woolly perennials with crowded tufts of leaves at the base, some forming a sod. Heads dioecious. Unattractive but met with quite frequently in the mountains, mainly in the Sierras from north to south.
824.	Antennaria media	
825.	Antennaria alpina	
826.	Antennaria speciosa	
827.	Antennaria luzuloides	
828.	Antennaria microcephala	
829.	Antennaria Geyeri	
830.	Antennaria marginata	
831.	Antennaria dioica	
832. Pearly Everlasting	Anaphalis margaritacea	

Perennial with leaves green above and woolly beneath. Flowers yellow, dioecious. Bracts of the involucre pearly white and spreading with age. Coast Ranges and Sierras.

832a. Cudweed; Everlasting	Gnaphalium

Woolly herbs with sessile and commonly decurrent leaves. Heads white, yellowish or rose-tinted, disposed in close or open clusters. Not dioecious.

833. Purple Cudweed	Gnaphalium purpureum
834. Lowland Cudweed	Gnaphalium palustre
835. California Everlasting	Gnaphalium decurrens var.
836. Pink Everlasting	Gnaphalium ramosissimum
837. Small-headed Everlasting	Gnaphalium microcephalum
838. Cotton-Batting Plant	Gnaphalium chilense and var.
839.	Gnaphalium bicolor

Distributed throughout the State, Coast Ranges and Sierras alike, except in the truly desert areas.

TRIBE 4. RAGWEED TRIBE AMBROSIEAE

Many of the plants in this tribe differ materially in general aspect and in structure from what is commonly considered typical of the family, Compositae, as a whole.

840. Poverty Weed; Death Weed	Iva axillaris

A common perennial plant from north to south in the State, usually frequenting gravelly or saline soils. Difficult to eradicate and hence complaints come to us concerning it from the farmers. Heads solitary, nodding and disposed in terminal spike-like clusters. Ill-smelling, unattractive, disliked by stock. Doves like seeds.

841.	Iva Hayesiana	Saline soil, San Diego south.
842.	Oxytenia acerosa	Shrubby perennial with erect branches, leafless and rush-like or with conspicuous leaves. Alkali plains, southeastern California. Flowers odor of lilacs according to Miss Eastwood.
843. Bug-Seed	Dicoria canescens	Annual, diffusely branches from the base and from 1 to several feet in height. Herbage with harsh spreading hairs. Achenes resemble bugs. Imperial Valley and Mohave Desert in dry alkaline, drifting sandy areas.

844. Bush-Hops	Hymenoclea Salsola	Low much branched shrubby plants of arid deserts with linear leaves and with the general aspect of sagebrush. Clusters of flowers resembling hops due to silvery wings of the involucre. Southern California, San Diego and Santa Barbara eastward.
845.	Hymenoclea monogyra	
846. Western Ragweed	Ambrosia psilostachya	A coarse perennial weed, sometimes very tall, with divided and bristly leaves. Creeping rootstocks which make it difficult to eradicate. Male flowers very abundant in long racemes; fertile flowers forming bur-like achenes. Common in Bay region and interior to Imperial Valley. Follows cultivation of lands.
847. Dwarf Ragweed	Ambrosia pumila	Vicinity of San Diego only.
848. Common Ragweed	Ambrosia artemisiifolia	Introduced weed.

FRANSERIA

Perennial herbs or shrubs with parted or incised leaves, unattractive flowers and fruit armed with prickles becoming a bur.

849.	Franseria tenuifolia	Southern California.
850.	Franseria acanthicarpa	Sandy plains and in stubble. Southern California and along eastern side of Sierras to Oregon.
851.	Franseria bipinnatifida	Beach sands all along the coast.
852.	Franseria chamissonis	Less common, seashore, middle California northward.
853.	Franseria dumosa	Gravelly soils, a characteristic species of southern California deserts.
854.	Franseria chenopodiifolia	Near Mexican border, San Diego County.
855.	Franseria eriocentra	Mohave Desert.
856.	Franseria ilicifolia	Colorado Desert, Imperial County.
857. Cocklebur	Xanthium Canadense	A common weed along ditches and waste places. Axils not spiny, large leaves. Burs troublesome in wool of sheep.
858. Spiny Cocklebur	Xanthium spinosum	A pernicious weed. Leaves lobed or cut and axils bearing prominent yellow spines. General throughout cultivated areas.
858a.	Xanthium commune	Bad weed in Imperial Valley according to Parish.
859. Broad Cocklebur	Xanthium strumarium	Bad weed from Eastern States. Like 857.

860. Cone Flower	Rudbeckia Californica	Wet, grassy places in the Sierras. Perennial, yellow rays with dark-brown center.

SUNFLOWER TRIBE HELIANTHEAE

861.	Eclipta alba	Reported by Parish as a common weed in Imperial Valley. By Jepson, Islands of the Sacramento River.

BALSAM ROOT SUNFLOWER BALSAMORHIZA

Low perennials with large roots from which arise tufts of radical leaves and heads of large yellow flowers on stalks which extend slightly beyond the leafage.

Much prized range forage plants especially for sheep and horses. They find it palatable even when the leaves are dried up.

The thick roots after being peeled were cooked and eaten by Indians for food.

862.	Balsamorhiza sagittata	Common in open parks, yellow pine region, eastern Sierras. Leaves on long petioles. Blades cordate-sagittate, entire.
863.	Balsamorhiza Hookeri	In same general region, but extending to the coast, where it is rare. Leaves pinnately parted or divided.
864.	Balsamorhiza deltoidea	Similar to 862, leaves more or less serrate, heart-shaped, southern Sierras to Oregon.
865.	Balsamorhiza Bolanderi	Smaller plant with only a few leaves. Auburn, Sierras.

MULE'S EARS WYETHIA

The name is appropriate except in the species that have no pubescence on the leaves when we must consider that the ears have been shaved. They are perennial plants with large tufts of leaves. At the base the leaves gradually emerge into the petiole and are not lobed as in Balsam root. Otherwise similar in appearance.

They are not considered as good range forage as the Balsam Root, only the more tender leaves being eaten from the center of the clumps along with large yellow flowers.

Some of the species cover large areas in the open yellow pine forests. They are found both in the Coast Ranges and the Sierras.

866.	Wyethia mollis	Abundant in large patches in the Sierras.
867.	Wyethia heleniodes	Coast Ranges.
868.	Wyethia glabra	
869.	Wyethia angustifolia	
870.	Wyethia ovata	Southern Sierras.
870a.	Wyethia amplexicaulis	Trinity County.
871.	Verbesina encelioides and var.	Erect branching annuals, yellow flowers, achenes winged. Pappus of two awns. Southern California.
872.	Verbesina dissita	
873.	Verbesina australis	

874.		Encelia Californica	Low shrubs with showy yellow flowers and yellow or purple disk. Deserts southern California.
875.		Encelia frutescens and vars.	
876.		Encelia farinosa	
877.	Desert Sunflower	Encelia eriocephala	Annuals or biennials. Root of 878 wanted by Hall. Southern deserts and mountains of San Diego County.
878.		Encelia viscida	
879.	Little Sunflower	Helianthella Californica	Low perennial, narrow leaves, medium sized heads of yellow flowers. Good range forage. Coast Ranges and Sierras.
880.	Sunflowers	Helianthus annuus	Annuals. Coast and interior.
881.		Helianthus petiolaris	
882.		Helianthus Bolanderi	
883.		Helianthus tephrodes	
884.		Helianthus exilis	
885.		Helianthus Parishii	Perennials, 885 and 887 in the south and 886 general in the Coast Ranges and Sierras.
886.		Helianthus Californicus	
887.		Helianthus gracilentus	

VIGUIERA

Shrubby plants of desert regions with brittle stems and rough leaves.

888.		Viguiera laciniata	South and southeastern California.
889.		Viguiera deltoidea var.	
890.		Viguiera reticulata	
891.	Coreopsis	Coreopsis (Leptosyne)	Genus recognized by the beautiful and easily grown garden annual. *Coreopsis tinctoria.*
892.		Coreopsis Douglasii	Annuals of the deserts and south Coast Ranges.
893.		Coreopsis Bigelowii	
894.		Coreopsis calliopsidea	
895.		Coreopsis maritima	Perennials, coast of Los Angeles, San Luis Obispo and San Diego Counties.
896.		Coreopsis gigantea	
897.		Coreopsis Stillmani	Sacramento Valley.

BUR-MARIGOLD: PITCHFORKS BIDENS

Annual or perennial herbs usually growing in moist places, showing weedy tendencies. Flowers yellow. Achenes crowned with two to four barbed awns.

898.	Bur-Marigold	Bidens chrysanthemoides and var.	Annuals, coast marshes and interior valley.
899.	Small Bur-Marigold	Bidens cernua	
900.	Beggar Ticks	Bidens frondosa	
901.	Water Daisy	Bidens expansa	Perennial. In shallow streams, southern California. Weedy tendencies.
902.		Bidens pilosa	Weed, southern California.
903.		Melampodium perfoliatum	Introduced weed from Mexico. Waste places, Los Angeles.
904.		Gymnolomia multiflora	Migrant from the desert. Occasionally found Los Angeles and Santa Monica.

905.	Galinsoga parviflora	Waste places, Los Angeles, introduced weed from Mexico.
906.	Bebbia juncea and var.	Partly shrubby. Deserts southern California.

TARWEED TRIBE MADIEAE

907. Tarweed — Madia

Erect annual and perennial herbs often sticky and heavy scented. Known by the fact that the excretions soil clothing and their abundance. Flowers yellow, opening in the evening and closing before noon of the next day. No pappus. Many of them troublesome farm and roadside weeds. A cooking oil has been obtained from *Madia dissitiflora.* The seeds of *Madia densiflora* are agreeably aromatic. Medicinal.

908.	Madia sativa	Sweet-scented.
909.	Madia capitata	
910.	Madia dissitiflora	
910a.	Madia exigua	
911.	Madia elegans	
912.	Madia madioides	
913.	Madia radiata	
914.	Hemizonella minima and var.	Low annual herb with minute yellow flowers. No pappus. Dry sterile soil throughout the Sierras.

915. Tarweed — Hemizonia (Centromadia, Calycadenia)

A large genus of perhaps twenty-five species in the State. Annuals and perennials (one woody), white or yellow flowers in numerous heads. The species are extremely variable and difficult to determine accurately. Some, called Spikeweeds have spiny leaves and have been placed by themselves in a genus *Centromadia,* but the flowers do not show sufficient characters to separate them.

Hemizonia luzulaefolia is very common in the grain fields and *Hemizonia pungens* is highly prized as a bee plant. Jepson reports tens of thousands of acres of alkaline plains of the upper San Joaquin utilized in the production of Spikeweed honey. Most of the species are well classified in Jepson's flora of Middle Western California and Hall's Compositae of Southern California. We will not attempt to enumerate them. The genera *Holocarpha, Harpaecarpus, Calycadenia* (the Rosin weeds) and *Blepharizonia* are also included by some with *Hemizonia.*

916.	Lagophylla ramosissima	An erect annual, simple or much branched, the branchlets fine and brittle. Leafage scanty and soon falling. Rays yellow and inconspicuous. Dry hillsides. San Bernardino to Oregon. Frequent from Truckee to Nevada line.
917.	Holozonia filipes	Perennial with creeping rootstocks. Stems and branches slender. North Coast Ranges.
918. Silver Scale	Achyrachaena mollis	Low, soft pubescent annual, flowers yellowish, turning brown. Conspicuous at maturity by the silvery scales of the pappus which spread out, appearing like white petals, forming white patches in adobe soil of the interior valley.

919. **LAYIA (BLEPHARIPAPPUS)**

Annuals with showy heads, not unlike daisies, of yellow or white flowers. The species are as yet not well known About fifteen species are credited to the State with many varieties. General throughout the State. Ocean shore, coast hills and Sierras.

SNEEZEWEED TRIBE HELENIEAE

920.	Jaumea carnosa	Stems from a fleshy crowned tap-root. Leaves narrow and succulent. Yellow flowers. Salt marshes, Bay region and beaches along the coast.
921.	Venegasia carpesioides	Appearing like the true sunflowers, *Helianthus*. Perennial with tall leafy stems. Large flowers with numerous yellow rays. Hilly coast regions, southern California.
922.	Psilostrophe Cooperi	Shrubby at base. Herbage white with a dense, woolly covering. Heads rather small, yellow, becoming papery. Southern deserts.

DESERT SUNFLOWERS BAILEYA

Striking plants of the deserts of southeastern California with their showy, yellow flowers and whitish woolly covered stems. One to two feet.

923.	Baileya pauciradiata	Rays 5 to 8.
924.	Baileya multiradiata	Rays 25 to 50.
925.	Whitneya dealbata	A low perennial of the Sierras with creeping rootstocks, hoary pubescent leaves and mostly solitary or showy golden yellow flowers. Wood, frequent. 5000 to 7000 feet.

GOLD FIELDS BAERIA

All but one annuals and low slender plants with very numerous showy heads of yellow flowers. The differentiation of the species is very difficult as numerous forms connect one with the other. Only the extremes can be reliably named according to the characters given in the descriptions. Hall has shown this in great detail in his Compositae of southern California when he describes eight forms under one variety. They occur on the Coast Ranges, Interior valley and southern deserts.

926.	Baeria maritima	
927.	Baeria Fremontii	
928.	Baeria tenella	Annuals, middle western California, Coast Ranges and interior valley.
929.	Baeria carnosa	
930.	Baeria platycarpha	
931.	Baeria hirsutula	
932.	Baeria micrantha	Perennial, along the coast, Marin County to Mendocino County.
933.	Baeria microglossa	
934.	Baeria chrysostoma var. gracilis	Southern California, all but 936, also in the north.
935.	Baeria uliginosa	
936.	Baeria aristata	

ERIOPHYLLUM (BAHIA)

Annuals or perennials, some more or less woody at the base with pubescent or whitish divided or incised leaves

Heads many-flowered, yellow.

937. Lizard tail	Eriophyllum staechadifolium	Sandy hills near the ocean along entire coast.
938.	Eriophyllum confertiflorum and vars.	Coast Ranges and Southern California.
939.	Eriophyllum Jepsonii	Mountains south of Livermore.
940.	Eriophyllum arachnoideum	Marin County.
941.	Eriophyllum idoneum	Vaca Mountains.
942.	Eriophyllum lanatum and var.	Solano County, Sierras and southern California.
943.	Eriophyllum multicaule	Southern California, Santa Barbara south.
944.	Eriophyllum Pringlei	Mohave Desert north to Mendocino County.
945.	Eriophyllum lanosum	Rare. Southeastern borders of the State.
946.	Eriophyllum Wallacei	Gravelly or sandy soil. San Bernardino Valley to the mountains eastward.
947.	Eriophyllum ambiguum	Southern desert regions and adjacent mountains.
948.	Eriophyllum Heermanni	Mohave Desert.
949.	Eriophyllum Nevinii	Catalina and other islands off coast.
950.	Eriophyllum integrifolia	High Sierras.
951.	Monolopia major and var.	A white woolly annual with sessile leaves and long-stalked heads of yellow flowers. Sacramento Valley and south through the Coast Ranges.

LASTHENIA

Glabrous, slightly succulent annuals of salt marshes, alkaline flats and pools in fields.

952.	Lasthenia glabrata and vars.	
953.	Lasthenia glaberrima	
954.	Lasthenia conjugens	
955.	Amblyopappus pusillus	A much branched annual with gummy, sweet scented herbage. Small heads of yellowish flowers terminating the branches. Common near the sea. Los Angeles to San Diego. To be looked for near Monterey.

HULSEA

Plants of the high Sierras and southern mountains. Large heads for the size of the plants with yellow flowers or the rays in one species purple.

956.	Hulsea algida	Tahoe region and elsewhere — on rocks about 10,000 feet. Strong roots, gummy herbage which is strong-scented.
957.	Hulsea nana and var.	Patches in volcanic soil. Heads yellow, solitary from rootstocks. leafage scanty and incised. Sticky. High mountains of eastern Sierras.
958.	Hulsea vestita and vars.	Leaves white-woolly when young. From lower altitudes beneath pines to the highest peaks, in its different varieties. In loose gravelly soil.
959.	Hulsea Californica	Floccose-woolly in bushy places, mountains of southern San Diego County.
960.	Hulsea heterochroma	On granite soil. No woolly pubescence. Disk tipped with purple when old. Middle altitudes, Sierras. To be looked for also in Coast Ranges of Monterey County. Rare.
961.	Rigiopappus leptocladus	A plant of wide distribution and abundant, extending from the north Coast Ranges to the sagebrush country over the mountains. Annual with very narrow leaves, and small heads of yellow flowers.
962.	Palafoxia linearis	Rough branched annual or perennial 1 to 3 feet high with linear leaves and narrow heads of rose-colored flowers. Colorado Desert eastward. Weedy tendencies.

963. **CHAENACTIS**

Annuals or low perennials with pinnately-parted, dissected, or more rarely entire leaves. Flowers yellow, white or purple tinged. Nnumerous forms, the same specie sometimes ascending from low to very high elevations, gradually becoming shorter, the flowers not changing in character. Some one or other of the species is frequently met with in the Sierras. About twenty species chiefly in the mountains and deserts. Jepson describes four in western middle California and Hall nine in southern California with numerous varieties and forms.

SNEEZEWEED HELENIUM

Erect perennials with resinous-dotted foliage. Heads solitary or several. Flowers yellow. Wet places, general. Medicinal.

964. Rosilla	Helenium puberulum
965. Bigelow's Sneezeweed	Helenium Bigelovii

SHEEPHERDER'S GUM HYMENOXYS

The rubber-like constituents of these plants were first said to be discovered by sheepherders who used them for substitutes for gum. A firm in Denver several years ago made a very good composition rubber from *H. floribunda utilis*, the Colorado rubber plant.

966.	Hymenoxys Cooperi	Desert regions, southern California. Resembles sagebrush but with yellow flowers.
967.	Hymenoxys biennis	
968.	Hymenoxys chrysanthemoides and var.	

SYNTRICHOPAPPUS FREMONTII

White-woolly annuals only a few inches high with yellow or purplish ray flowers and yellow disk flowers disposed in small heads. Deserts, southern California.

969.	Syntrichopappus Fremontii	Rays yellow, numerous awns.
970.	Syntrichopappus Lemmoni	Rays rose-purple in pappus.
971.	Trichoptilium incisum	Low (a few inches), spreading woolly desert annual with leaves toothed or incised and yellow flowers on slender peduncles. Pappus of 5 much divided scales.
972.	Blenosperma Californicum	Low annual with pinnately parted leaves and branches bearing solitary yellow-flowered heads. Moist ground upper Sacramento to southern California.
973.	Nicolletia occidentalis	A stout, erect, very smooth and slightly succulent perennial of the desert. Leaves narrow and parted into short, sharp lobes. Strong - scented. Heads nearly sessile among the upper leaves. Purple rays striped with pink. Mohave Desert region.
974.	Dysodia Cooperi	Strong - scented perennials of the desert regions. Herbage blotched with large purple oil glands. Rays yellow.
975.	Dysodia porophylloides	

976. Porophyllum gracile

Disagreeably scented perennial dotted with oil glands. Flowers dull-white and purple. San Diego across the desert and south to Mexico.

977. Chinch-weed	Pectis papposa	Disagreeable odor like that from the chinch bug. Low branching herbs. Yellow flowers. Weed in Imperial Valley.

MAYWEED TRIBE ANTHEMIDEAE

978. Yarrow	Achillea millefolium and vars.	

This is one of the most cosmopolitan plants we know of occurring as it does throughout Asia, North America and Europe. In California it is abundant both on the coast and in the valleys and in the Sierras.

It is strongly scented with very finely divided leaves from perennial roots. The terminal clusters of flowers are whitish often tinged with pale rose. The foliage is slightly pungent but nevertheless is eaten to a considerable extent by stock, especially sheep. In Sweden it is used as a substitute for hops. In Scotland it is used as an ingredient of an ointment which they apply to wounds and in England. Sometimes called Nose-bleed owing to its ancient use as a vulnerary. The women of the Orkney Islands make Yarrow tea and consider that it has the power of dispelling melancholy. The Laplanders use the young shoots as salad. The mountaineers of the Alps make vinegar from it. When dried and pulverized it causes sneezing.

979. Mayweed; Dog-fennel — Anthemis Cotula

A very common weed becoming more and more abundant every year in pastures, grain fields and waste places. Herbage causes irritation of skin in harvest fields. The leaves are finely divided and give off a strong fetid odor, especially when crushed. Flowers white with a yellow disk. Daisy-like. Introduced from Europe.

979a. — Anthemis arvensis — Similar, but without unpleasant odor. Introduced.

980. Ox-eye Daisy — Chrysanthemum leucanthemum

A common and very pretty weed of dry pastures in Europe. Large heads resembling the Shasta Daisy of the gardens. Flowers white. Sparingly introduced Santa Cruz and elsewhere.

981. Corn Marigold or Yellow Ox-eye — Chrysanthemum segetum — Similar but with yellow rays. Bad weed in grain fields in Europe. Sparingly introduced. West Berkeley and elsewhere.

982. Pineapple-weed — Matricaria matricarioides — An annual with finely divided leaves and heads consisting of a conical disk of yellowish flowers without rays. Distinct odor of pineapple. Introduced from Europe and now common in pastures and waste places throughout the State.

983. — Matricaria occidentalis — Similar but herbage not so strongly scented, disk longer and more cone-shaped. In richer soil. San Francisco, Sacramento Valley and south.

984. — Cotula australis — Low, reclining annual with finely dissected leaves. Strong scented, without rays, and yellow flowers on a nearly flat disk. Along streets in cities of Bay region and southern California. Introduced from Australia.

985.	Cotula coronopifolia	Similar but perennial with leaves not so finely divided. Saline localities in Bay region and wet places in the hills. General. Introduced from South Africa.
986.	Soliva sessilis	Small annual with dissected leaves and sessile heads (without rays) of greenish flowers. Occasional in moist ground Bay region and elsewhere. Probably introduced from Chile.
987. Dune Tansy	Tanacetum camphoratum	Herbage woolly when young, and with the odor of camphor. Clustered heads of yellow flowers without rays. Sand dunes, San Francisco.
988.	Tanacetum potentilloides	Sierra Valley.
989. Garden Tansy	Tanacetum vulgare	

Introduced. Occasional escape from gardens. Supposed to be a remedy for nearly all human ailments. Tansy tea, Tansy wine, meat rubbed with Tansy said to keep away flies; Tansy cakes eaten during Lent by way of penance in ancient times. Tansy pudding relished by some; medicinally in other ways as an anthelmintic, tonic, in dropsy, as a local application to ulcers, etc.

SAGEBRUSHES AND WORMWOODS ARTEMISIA

A very large genus abundant through the interior arid region where it forms the characteristic landscape.

Herbs or undershrubs, or woody at the base only. Leaves bitter, strong scented and mostly lobed or dissected. Terminal sprays or spikes of numerous small heads, yellowish flowers. Rays none. Coast, valleys, and mountains. Medicinal.

990. Desert Sagebrush	Artemisia tridentata	The common sagebrush of Nevada and eastern Sierras, extending well up into the open parks in the yellow pine belt. Generally indicative of a good soil for agricultural purposes. Reliable forage, especially in winter.
991. Little Black Sagebrush	Artemisia trifida	Similar to above and in the same general region.
992. Woody Sagebrush	Artemisia arbuscula	High Sierras, similar, but only a few inches tall.
993. Hoary Sagebrush	Artemisia cana	Sierras, Little Truckee River and elsewhere, shrubby leaves, linear, entire, densely white, pubescent.
994. Hill Brush; Old Man	Artemisia Californica	Green or gray shrub. Leaves parted into fine segments. Bay region, south.
995. California Mugwort	Artemisia heterophylla	Leaves large, green above, whitish beneath, and on tall, erect stems. Woody at the base only. Stream banks throughout the State.

996. Linear-leaved Wormwood	Artemisia dracunculoides	Not aromatic, heads nodding on distinct pedicels. Sierras and occasional on coast.
997. Desert Wormwood	Artemisia Ludoviciana	Along streams common eastern Sierras, strong running rootstocks.
998. Parish's Sagebrush	Artemisia Parishii	Distinctly shrubby. Los Angeles County and south.
999. Palmer's Sagebrush	Artemisia Palmeri	San Diego and south.
1000. Ocean Sagebrush	Artemisia pycnocephala	Densely woolly. Sand hills along the coast. Monterey and north.
1001. Button Sagebrush	Artemisia spinescens	Very low, spreading and spiny. Madeline Plains, Lassen County, to Mohave Desert. High mountains. Southern California.
1001a.	Artemisia Rothrockii	
1002.	Artemisia Norwegica	High Sierras. Tahoe region.
1003.	Artemisia discolor var.	Sierras. Mountains west of Truckee.
1004. Biennial Wormwood.	Artemisia biennis	One to four feet tall, without odor, leaves divided. Waste places, Berkeley, Los Angeles. Introduced, probably from the northwest, where it is native. Common in vacant city lots in the eastern States.

GROUNDSEL TRIBE SENECIONEAE

1005. Sweet Colt's-foot	Petasites palmata	Peculiar looking plant with its thick, woolly bracted stem bearing whitish or purplish soft heads, the ample radical leaves developing later. Perennial from creeping rootstocks. Shaded woods, Bay region, Marin County and elsewhere.

TETRADYMIA

Low, rigid shrubs mostly confined to desert regions. About the size of the sagebrushes and occasional individuals found with them. Gray or green herbage mostly with a woolly covering. A few with rigid curved spines. Leaves linear and entire. Clusters of middle sized heads of yellow flowers. Pappus of numerous soft hair-like bristles. Some of them good forage.

1006.	Tetradymia spinosa	Eastern borders of the State throughout its entire length.
1007.	Tetradymia canescens var.	All of the southern deserts or eastern Sierra foothills.
1008.	Tetradymia glabrata	
1009.	Tetradymia stenolepsis	
1010.	Tetradymia comosa	

1011.	Luina hypoleuca	Low plants from a woody rootstock, woolly throughout, about a foot high. Heads half an inch long, yellow flowers. Coast mountains, Mendocino and Santa Cruz Counties.
1012.	Psathyrotes ramosissima	Low branching annuals of the deserts with sticky herbage, strong scented. Light purple or yellowish flowers. No rays. Frequent on rocky ledges, southern deserts.
1013.	Psathyrotes annua	The same general region, leaves thinner, otherwise similar.

1014. **GROUNDSEL SENECIO**

A very large genus numbering perhaps 1,000 species in the world. The eastern floras describe twenty-two, and there are probably as many in California. A difficult group of plants to identify so much do they vary under slight changes of environment. Several are in cultivation, the Dusty Miller being a well known garden plant. The Ivy Senecio, *S. mikanoides* has escaped along creeks in the Bay Region, climbing over shrubbery. The common groundsel *S. vulgaris* is frequent near towns as a weed. It is gathered and sold on the streets in Europe for green feed for canaries. All the species are probably medicinal and *S. vulgaris* and *S. aureus* are recorded as such.

They are annuals or perennials, having yellow flowers with or without rays. Occur abundantly in the Coast Ranges, Interior valley, the Sierras at all elevations, and some in the desert regions. Some spread rapidly after forest fires. They are considered to be good range forage. Jepson describes seven native species in western middle California, and Hall records eleven for southern California. Many of the species extend to both these regions. There are about ten additional species in the north Coast Ranges and Sierras.

We will not attempt to enumerate the species which will be on exhibit under No. 1014-A-Z.

ARNICA

Perennial, somewhat aromatic herbs with few leaves and mostly simply stems from creeping rootstocks, bearing solitary or few rather large yellow flowered heads on long stalks. Mostly with rays. Species are difficult to differentiate.

1015.	Arnica parvifolia	Chaparral, Humboldt County.
1016. Coast Arnica	Arnica discoidea	Dry, open woods, Coast Ranges.
1017.	Arnica latifolia	Sierras. To be looked for on Mt. Hamilton also.
1018.	Arnica cordifolia	Sierras, north to south.
1019.	Arnica Bernardina	Mountains of Southern California.
1020.	Arnica mollis	High Sierras.
1021.	Arnica Chamissonis	
1022.	Arnica foliosa var.	
1023.	Arnica Nevadensis	Lake Tahoe region and elsewhere in the Sierras.
1024.	Arnica longifolia	
1025	Arnica alpina	
1026	Raillardella argenta	

A stemless plant of the high Sierras with stout rootstocks, linear entire leaves and large heads of yellow flowers, without rays. Pappus of twelve to twenty-five slender soft plumose bristles. In patches in loose granite soil.

1027. Calcaliopsis Nardosmia

A woolly perennial with palmate leaves about three inches across, and honey-scented yellow flowers, without rays. Near the Geysers, Sonoma County and northward.

1028. Lepidospartum squamatum

A broom-like shrub with mostly scales for leaves, without rays. Common in washes and dry gravelly soil from San Luis Obispo County south.

1029. Peucephyllum Schotti

An interesting shrub as according to Hall its relationship in the compositae is not well defined. A desert shrub with trunk-like stem, rough bark and crowded resinous dotted leaves. Flowers yellowish, without rays. In canyons and on foothills, Inyo county south through the deserts.

THISTLE TRIBE CYNAREAE

The name thistle has been applied indiscriminately to many plants of this tribe, belonging to different genera and also to a large number of plants in other families.

1030. Blessed Thistle Cnicus benedictus

An annual about a foot high and much branched with prickly toothed leaves. Heads about two inches across and surrounded by a rosette of leaves. Flowers yellow, without rays. Called "Blessed" because of the erroneous belief that it had wonderful healing properties. Introduced from Europe; interior valleys.

1031. **THISTLE CARDUUS CIRSIUM**

A large group of stout, mostly perennial plants with more or less prickly leaves and stems and large or medium sized many flowered heads of purple, red, pale-yellow or white flowers. The involucre is spiny and decidedly obnoxious. Some of them are very beautiful and several of the western species should be introduced into our gardens. To indicate that there are conspicuous plants in our immediate vicinity that have not been described we might cite the instance of a new thistle recently discovered by Miss Walker, of the University of California, herbarium in the vicinity of Berkeley canyon. We will not list the species but refer you to Jepson; flora of western middle California, who describes thirteen species and Hall's Compositae of southern California where six species are classified. These include most of the species of the State.

The Bull Thistle, *C. lanceolatum,* an introduced weedy European species is becoming quite abundant in pastures and waste places in the Bay Region and elsewhere. The dreaded Canadian Thistle, *C. arvensis,* is not infrequent in Lassen and Modoc counties. As it has pernicious rootstocks which are very difficult to eradicate from cultivated fields, it should be given immediate attention. It is a native of Europe but first became troublesome in Canada, and has retained the name.

1032. Milk Thistle Silybum marianum

This is the thistle that is so abundant up in the Bay Region and elsewhere, sometimes occupying vacant lots to the exclusion of all other vegetation. It can be recognized by the white-blotched leaves. It is a native of Europe where it can be seen growing in gardens as an ornamental.

CENTAUREA

The blue bottle or German Cornflower, *C. cyanus,* of the gardens is typical of the genus. It is sometimes found as an escape. Some of them are our worst weeds particularly in the grain fields and pastures. They are all introduced from Europe.

1033. Napa Thistle Tocalote	C. Melitensis	Abundant everywhere. Yellow flowers, spines on heads 1-4 to 1-3 inch long.
1034. Star Thistle	C. solstitialis	More abundant in the Interior Valley. Yellow flowers. Spines on heads stout and 1-2 to 1 inch long.

1035. Purple Star Thistle	C. Calcitrapa	Very stout yellow spines 1 to 2 inches long. Heads at first concealed by the spines. Flowers purple; not common. Burlingame, San Mateo, Vacaville.
1036. Escobilla	C. Salmantica	Bracts not spiny. Purple flowers. Healdsburg.
1037. Turkestan Thistle	C. Picris	Very common in imported alfalfa seed and should be watched for.
1038.	Carthamus lanatum	Rigid prickly clasping leaves; bracts spiny. Yellow flowers. Introduced San Francisco.

1039. Artichoke — Cynara Scolymus

A large plant with large spiny leaves. Heads very large and solitary. Conspicuous from trains after leaving Benicia for a few miles; also Napa, Alameda and Los Angeles. An escape from vegetable gardens. European.

1040. Burdock — Arctium lappa

A plant with large coarse leaves heart-shaped at the base. Heads pink or purple. Forming a bur in fruit with conspicuous hooked spines. Well known medicinally by "B.B.B." Seeds 25 cents per pound. Roots 25 to 30 cents per pound. Introduced from Europe. Noxious weed getting started at Riverside. Frequent in Eastern States.

1041. A. minus — Similar and probably introduced.

MUTISIA TRIBE MUTISIEAE

1042. Perezia microcephala

A branching perennial plant several feet high with rough thin leaves and numerous heads of bilabiate, rose-colored to white corollas; pappus white, soft. Rather common, chaparral belt, San Luis Obispo to western San Diego county.

1043. Trixis angustifolia var.

Low desert shrub with strong scented herbage like that of wormwood. Heads solitary or a few at the ends of the branchlets. Bilabiate bright yellow flowers. Stony or gravelly soil. Colorado Desert.

CHICORY TRIBE CICHORIEAE

1044. Chicory, Succory — Cichorium intybus

Although a weed one cannot help but admire its beautiful sky-blue flowers. It has a strong perennial tap root not easily eradicated. A variety of this species is extensively cultivated for its roots which are dried, roasted and ground and quite generally used with coffee. The blue flowers when attacked by wood ants which excrete formic acid turn to a brilliant red. Bay Region, Los Angeles, San Diego and elsewhere. The Endive of the gardens is Cichorium Endivia.

1045. Golden Thistle	Scolymus Hispanicus	A thistle-like erect plant with spiny lobed leaves and large heads of yellow flowers. Introduced from Europe. Los Gatos. Leaves and stalks used for food in Spain.
1046.	Rhagadiolus Hedypnois	A European weed found naturalized in a few places in Sonoma and Mariposa Counties. Also San Diego.

1047. Viper's Grass	Scorzonera Hispanica	A garden plant. Native of Europe; naturalized at Knight's Valley, Calistoga.
1048.	Phalacroseris Bolanderi	A glabrous perennial with a tuft of lanceolate entire leaves from a thickened dark colored rootstock. Flowers orange yellow. Wet meadows, Yosemite Valley, 7000 to 8000 feet.

1049. **MICROSERIS**

Mostly smooth herbaceous plants with pinnatifid leaves mostly in tufts and without stems. Yellow flowers at the ends of long stalks. Solitary heads which nod when in bud, becoming erect later.

1050.	M. attenuata	Solano County to Alameda County.
1051.	M. aphantocarpha and vars.	Napa Valley south. Interior Valley.
1052.	M. elegans	Interior Valley south.
1053.	M. Douglasii	Coast and Interior Valley and south.
1054.	M. linearifolia	Common throughout southern California.
1055.	M. Lindleyi and vars.	Middle California and south.
1056.	M. montana	Tehachapi region.
1057.	M. Bigelovii	Sandy lands coast. San Francisco north.
1058.	M. acuminata	North Coast Ranges and Sierra foothills.
1059.	M. nutans	Sierras. Root said to be eaten raw by the Indians.
1060.	M. major	Long Valley, Mendocino Co.
1061.	M. sylvatica and vars.	Wooded hills or low ground of Interior Valley.
1062.	M. procera	North Coast Ranges.
1063.	M. Bolanderi	Swamps, North Coast Ranges.
1064.	M. troximoides	Humboldt County. (?)

1065. Atrichoseris platyphylla

A glabrous desert annual with broad basal leaves and a single stalk bearing the branched inflorescence of numerous small white and purple heads. No pappus. Achenes with corky ribs. Colorado and Mojave Deserts.

STEPHANOMERIA

Tall slender branching annuals, biennials or perennials with narrow leaves often reduced to bracts in the upper half, and three to twelve flowered heads of pink or flesh-colored flowers, opening in the early morning.

1066.	Stephanomeria cichoriaceae	Southern California to the deserts.
1067.	Stephanomeria Parryi	
1068.	Stephanomeria runcinata	
1069.	Stephanomeria myrioclada	
1070.	Stephanomeria exigua and vars.	
1071.	Stephanomeria virgata and vars.	Canyons of middle California and common in the south.

1072.	Stephanomeria tomentosa	Known from Santa Cruz Island.
1073.	Stephanomeria tenuifolia	In the Sierras.
1074.	Stephanomeria lactucina	In the Sierras.
1075.	Stephanomeria Schottii	Colorado Desert and Salton Sink.

RAFINESQUIA

Stout and sometimes hollow-stemmed branching annuals with toothed leaves and white flowers tinged with rose.

1076.	R. Californica	Shady or moist places almost throughout the State.
1077.	R. neo-mexicana	Common among shrubs in desert regions of the south.

1078. Gosmore — Hypochoeris radicata

One of the worst weeds in the northern coast pastures where it has taken the fields for miles. It has a strong perennial forked root not unlike the eastern lawn dandelion in appearance. The leaves are mostly at the base from the center of which comes a branching stalk bearing several medium sized yellow flowers. Introduced from Europe. In the Bay region and north, also at Pasadena, Redlands. A lawn weed. Flowers eaten by stock but leaves too near the ground for cattle.

1079.	H. glabra	Similar but annual. Also introduced in fields and pastures, Bay region and southern towns.

1080. Anisocoma acaulis

A low but showy stemless winter annual with a strong tap root and several stalks each bearing a single rather large head of yellow flowers. Runcinate leaves in a rosette at the base of the plant. Sierra Valley south to the deserts.

1081. Glyptopleura marginata

An interesting desert annual with a stout tap root from the crown of which spreads out a whorl of leaves very close to the ground. The heads of rather large flowers are mostly concealed by fringe-margined leaves. White turning to pink. Mohave Desert extending along the base of the eastern Sierras to Oregon.

1082.	Glyptopleura setulosa	Mohave Desert, probably not distinct from 1081.

1083. Calycoseris Parryi

A low, glabrous much-branched annual with the leaves mostly parted into linear divisions. Heads rather large on long stalks. Flowers yellow. Pappus of copious white bristles. Southern California deserts.

1084.	Calycoseris Wrightii	Similar, growing among brush; pink-brown dots on flowers. Western Mohave and Colorado Deserts.

MALACOTHRIX

Annual or perennial, mostly stemless plants with a cluster of radical leaves at the base. Three partially woody and stemmed species in southern California.

Leaves divided into linear lobes or occasionally entire. Heads medium-sized, solitary or several on lateral stalks.

Flowers yellow, white, or pinkish. Mostly in hot valley or desert regions.

1085. Snake's Head.	Malacothrix Coulteri	Sparingly, San Joaquin Valley and south.
1086.	Malacothrix glabrata	On light soil under brush, southern California and along eastern base of Sierras to Oregon. Light yellow, showy.

1087.	Malacothrix Torreyi	On open dry ground. Frequent Washoe County, Nevada, and probably over the border. Bright yellow.
1088.	Malacothrix Clevelandi	Plains, eastern base of Mt. Diablo and south. Yellow.
1089.	Malacothrix Californica	Sacramento Valley, West Valley to Coast Ranges and east to Nevada. Leaves woolly when young. Yellow, showy.
1090.	Malacothrix sonchoides	Inyo County, south in the deserts. Bright yellow.
1091.	Malacothrix obtusa	Higher mountain slopes of the Coast Ranges; Sierras; frequent in Yosemite, also more or less north and south. White or pinkish.
1092.	Malacothrix foliosa	Islands off coast of southern California.
1093.	Malacothrix indecora	
1094.	Malacothrix incana	Coast Counties, southern California and islands.
1095.	Malacothrix saxatilis and vars.	Southern California and adjacent islands.
1096.	Malacothrix altissima	Tehachapi region. White or striped with a pink line.

HAWKSBEARD CREPIS

Annuals, biennials or perennials, mostly with a milky juice which is very bitter. Nevertheless stock eat them and like them. Some of them are important native range forage plants in the mountains. They are widely distributed in the Sierras, in the foothills and at medium elevations. Leaves cut into like the dandelion, hence known to sheep men as "wild dandelion." Yellow flowers.

1097. Smooth Hawksbeard	Crepis virens	Introduced weed. Berkeley and elsewhere.
1098. Gray Hawksbeard	Crepis occidentalis and var.	Very common generally in the eastern Sierras and extending in less degree to Coast Ranges north and south. Mt. Hamilton.
1099.	Crepis acuminata	Common on dry slopes in the Sierras.
1100. Rough Hawksbeard	Crepis biennis	Pasadena. Introduced from Europe.
1101.	Crepis Andersonii	Eastern Sierras. Sierra Valley.
1102.	Crepis glauca	To be looked for eastern Sierras.
1103.	Crepis nana	High Sierras, Sonora Pass. Doubtful species. Need material from type locality.

TROXIMON (AGOSERIS)

Annuals or perennials with leaves clustered at the base and usually strong, deep tap roots. The stems are mostly leafless and bear at the end single large heads. The flowers are yellow or sometimes orange turning to purple. An abundant bright white pappus which at maturity spreads out like the weedy dandelion. Achenes usually prolonged into a slender beak but shows intermediate stages to beakless.

1104.		Troximon heterophyllum and vars.	An extremely variable species in all its parts, including the fruit. Hall includes many previously described species under it as varieties or forms. Leaves oblong, entire or variously lobed or toothed. Flowers inconspicuous. Open grounds. Throughout California.
1105.		Troximon glaucum and var.	Meadows, eastern Sierras. Achene has a stout beak not more than half the length of its body.
1106.		Troximon aurantiacum	Same range as 1105. Beak of achene nearly the full length of the body. Flowers orange turning to purple.
1107.		Troximon apargioides	Sand hills of San Francisco Peninsula.
1108.		Troximon hirsutum	Grassy hills about San Francisco Bay.
1109.		Troximon grandiflorum and var.	Coast Ranges Sacramento Valley to Oregon.
1110.		Troximon plebeium	San Francisco Bay region south; southern Seirra foothills.
1111.		Troximon retrorsum	Mendocino County to Diablo Range by way of mountain summits, and sparsely in southern California on loose gravelly foothill soils.
1112.	Dandelion; Clocks	Taraxcum officinale and var.	

The worst known pest in lawns in the Eastern States and in States with cold winters. Not so pernicious on the coast. Very frequent in alfalfa fields of eastern Sierra region making the fields yellow in early spring before the first cutting.

It has a strong, long, tap root which, unless cut deeply, keeps sending up new and more vigorous growths. A long-lived perennial; milky, bitter juice. Large yellow flowered heads on hollow stalks. Leaves sometimes eaten as salad and greens. More than one hundred thousand pounds of the dried roots imported annually from Europe notwithstanding its abundance in this country. Sells for 4 to 10 cents per pound. To make gathering pay, cheap labor must be employed.

Introduced from Europe. Rarely found on the coast away from towns.

1113.	Apargidium boreale	Stemless perennial found in bogs of Mendocino and Humboldt Counties. Heads solitary and nodding when young. Yellow flowers. Perhaps should be included in Microseris.

HAWKWEED HIERACIUM

Perennials with coarse and usually bristly-hairy toothed or entire leaves and yellow or white flowers on a branched stalk.

1114.	Hieracium Bolanderi	Mendocino County.

1115.	Hieracium horridum	High Sierras among rocks or decomposed granite.
1116.	Hieracium albiflorum	Common throughout the State in dry woods in the mountains.
1117.	Hieracium Parishii	Foothills of the San Bernardino Mountains and vicinity.
1118.	Hieracium argutum	Hills back of Santa Barbara. Rare.
1119.	Hieracium Grinnellii	Southern California near Pasadena, Santa Monica; San Bernardino Mts.
1120.	Hieracium Brandegei	Santa Lucia Mts. Only collected once.
1121.	Hieracium triste, var. detonsum	Ebbetts Pass, High Sierras.
1122.	Hieracium Scouleri	Eastern Sierras, Sierra Valley.
1123.	Lygodesmia juncea	A striking low perennial of desert regions with rush-like spreading branches and medium-sized, rose-colored flowers at the summits of the branchlets. Perhaps enters California from the eastern desert region where it is frequent. Probably poisonous and should be investigated. Weedy tendencies.
1124.	Lygodesmia spinosa	Spiny and with a tuft of wool at the base of the stem. Gravelly hills or sand, Inyo County and Mono Lake region.
1125.	Lygodesmia exigua	Mohave and Colorado deserts, Inyo County.
1126. Prickly Lettuce; Compass Plant	Lactuca scariola var.	Tall, leafy stemmed annual or biennial with all parts containing a bitter milky juice. Leaves act as sun dials. Open clusters of yellow flowers. All too abundant over the State in waste places, meadows and grain fields. Difficult to eradicate. Introduced from Europe. Stock eat it readily, but it is not good for milch cows.
1127. Garden Lettuce	Lactuca sativa	Sometimes found escaped. Has the midrib of the leaves smooth on the back while 1126 has a row of soft prickles.
1127a. Wild Lettuce	Lactuca canadensis	Bad weed. Grain fields. Sierra Valley, otherwise rare.

SOW-THISTLES SONCHUS

Some of these weedy plants are nearly sure to be seen wherever the land is utilized for agricultural purposes. Coarse, somewhat succulent stemmed plants with yellow flowered heads swollen at the base like a two-handled mug or jug.

1128. Common Sow Thistle	Sonchus oleraceus	Leaf-bases pointed. Introduced from Europe.
1129. Prickly Sow Thistle	Sonchus asper	Leaf-bases rounded. Introduced from Europe.
1130.	Sonchus tenerrimus	San Diego and islands off the coast. Rare. Introduced from Europe.

LOBELIA FAMILY LOBELIACEAE

The family is best known by a species of the genus Lobelia, *L. inflata,* an annual plant of the Plains Region of the United States south to Georgia. It is a very poisonous plant but valuable medicinally. The market offers 20 cents a pound for the seeds and 3 to 8 cents a pound for the dried leaves and tops. Although it has weedy tendencies, we do not know of its occurrence in California. It might be well worth growing for commercial purposes. The family contains many ornamental garden plants.

The following representatives of the family which are natives of California are not reported as being poisonous.

BOLELIA

Very dwarf, but beautiful-flowered plants frequently occupying considerable areas in low, wet places in pastures and grain fields in the interior valley and in the mountains. They form masses of solid blue mingled with white and yellow. The species are not well defined

1131.	Bolelia elegans	Sacramento Valley.
1132.	Bolelia pulchella	Abundant, Sacramento Valley in salt marshes and elsewhere.
1133.	Bolelia concolor	Low fields near Siusun.
1134.	Bolelia cuspidata	North Coast Ranges.
1135.	Bolelia ornatissima	Plains near Elmira.
1136.	Bolelia humilis	Sonoma County.

1137. Laurentia carnosula

Rooting in mud. One to five inches high, somewhat succulent flower, stalks longer than the leaves. A pretty blue-flowered plant mingled with yellow or white. Sierras; Sierra and Indian Valley, and elsewhere.

1138. Nemacladus ramosissimus

Low annual, with much-branched slender zig-zag stems. Flowers flesh-colored and very small at the tips of the branchlets.

Sandy or gravelly open places throughout the Sierras.

1139.	Nemacladus longiflorus	Similar. San Diego and San Bernardino Counties.
1140.	Howellia limosa	Margins of pools; Sacramento Valley; Siusun. A weak, more or less matted plant with short linear leaves and cleistogamous flowers.

BELL-FLOWER FAMILY CAMPANULACEAE

Best known by the remarkably beautiful garden plants, the Canterbury Bells, Hare-Bells and Blue Bells of Scotland.

1141. Narrow-leaved Hare-Bell	Campanula linnaeifolia	Swamps, Point Reyes north to Mendocino County.

1142. California Hare-Bell	Campanula prenanthoides	Wooded hills near the coast; Sierras.
1143.	Campanula Scouleri	Redwood region.
1144.	Campanula exigua	Summits of peaks of the Coast Ranges.
1145.	Githopsis specularioides and var.	

Low annual (one to six inches), herbage covered with short, spreading hairs. Leaves sessile, linear and coarsely toothed. Calyx resembling corn-cockle. Purplish flowers with a white center. Open ground, Coast Ranges and south; Plumas County.

1146.	Heterocodon rariflorum	A very delicate little annual with leafy branched stems and pale blue corolla. Open grassy places Coast Ranges and Sierras. Southern California.
1147. Venus Looking Glass	Specularia biflora	Annual with leafy slender stems. Leaves sessile or clasping. Flowers in the axils, blue. Open hills of the Coast Ranges; Interior Valley.
1148.	Specularia perfoliata	Plumas County.

HEATH FAMILY ERICACEAE

This family always commands a great deal of respect from plant enthusiasts. Its members show no weedy traits although some are regarded with suspicion by the stockmen as being poisonous. The Rhododendrons and the Azaleas are prized for their showy flowers both in and out of cultivation. Large quantities of the berries of the manzanitas are eaten by hogs on the north coast ranges and formerly supplied as much food to the Indians. Then there are huckleberries and blueberries and bilberries which certainly have done their share to brighten the homes of Californians. The manzanitas, too, are abundantly represented and our handsome tree, Bret Harte's "Robin Hood of the Western Wood," the Madrona, is still plentiful among us, and last, but not least, the snow plant.

1149. Huckleberry	Vaccinium ovatum	Redwood region. Berries dark purple, gathered in quantities and shipped by boat to San Francisco from the northern coast counties. A favorite with florists for greenery.
1150. Bilberry	Vaccinium parvifolium	Redwood region. Berries red.
1151.	Vaccinium Myrtillus var.	Dwarf shrub (3 to 6 in.), wet places, High Sierras.
1152.	Vaccinium occidentale	Low shrub. Sierras, 6000 to 7000 feet. Blue berry with a bloom.
1153. Madrono	Arbutus Menziesii	

Shrub or tree. Occasional specimens found as much as twenty-three feet in circumference and 100 feet high with branches several feet in diameter. Wood hard, makes good charcoal for gunpowder manufacture. Leaves handsome, large and shiny. Flowers in white clusters, berry orange, becoming vermillion. Not very palatable. Coast Ranges and western Sierra foothills.

MANZANITA ARCTOSTAPHYLOS

The Manzanitas are extremely variable and it is difficult to discriminate between certain of the species. By some authors the genus is divided into many species, while others have few species allowing for much variation within the species. Miss Eastwood has studied the genus critically in the field and Professor Jepson gives an excellent account of their behavior under fire in Madrono, the "Journal of the California Botanical Society." They form in part the chaparral, characteristic of much of our California foothills and mountains.

1154.	Arctostaphylos Andersonii	Localized areas, Bay region.
1155.	Arctostaphylos glandulosa	
1156.	Arctostaphylos vestita	Monterey Peninsula
1157.	Arctostaphylos tomentosa	Mendocino Coast to Marin County.
1158.	Arctostaphylos nummularia	Coast hills, abundant on Mt. Tamalpais.
1159.	Arctostaphylos Stanfordiana	Mt. St. Helena Range.
1160.	Arctostaphylos patula	Common Sierras and west to Mt. Shasta.
1161. Common Manzanita	Arctostaphylos manzanita	Coast Ranges and Sierras.
1162.	Arctostaphylos viscida	Sierra foothills.
1163.	Arctostaphylos Mariposa	Southern Sierra foothills.
1164. Big-Berried Manita	Arctostaphylos glauca	Mt. Diablo Range and south.
1165.	Arctostaphylos Nevadensis	Very low, in patches densely covering the ground. Sierras.
1166.	Arctostaphylos bicolor	Near San Diego.
1167.	Arctostaphylos polifolia	Below San Diego, near the boundary line.
1168. Bearberry	Arctostaphylos Uva-ursi	Trailing or spreading over the ground. Flowers in small clusters. High mountains, northern California, across continent and in Europe.
1169. Salal	Gaultheria Shallon	Redwood region north. Fruit esteemed by Indians.
1170.	Leucothoe Davisiae	Sierras, Plumas County, Nevada County.
1171.	Cassiope Mertensiana	High Sierras.
1172.	Bryanthus Breweri	Rocky summits, high Sierras.
1173.	Bryanthus empetriformis	Mt. Shasta and elsewhere.
1174. American Laurel	Kalmia glauca	Mashy places, high Sierras.
1175. Rose Bay	Rhododendron Californicum	Leaves evergreen, showy rose-colored flowers. Northern California.
1176. Azalea	Rhododendron occidentale	Leaves deciduous. Flowers large, white, rose-tinged, or pale yellow. Mountains, canyons, throughout State.
1177. Labrador Tea	Ledum glandulosum	Cold marshy places, coast and Sierras.
1178. Prince's Pine	Chimaphila umbellata	Mt. Shasta, Sierra Valley and elsewhere.

1179. Pipsissewa	Chimaphila Menziesii	Pine woods, Sierras, and north to Mendocino County.
1180.	Moneses uniflora	High mountains. Rare.
1181. Wintergreen	Pyrola aphylla	Rare in Coast Mountains; frequent Sierras.
1182. Shin-leaf	Pyrola picta	Northern Sierras west to Mendocino County.
1183.	Pyrola chlorantha	Yuba River region.
1183a.	Pyrola pallida	Sierras.
1184.	Pyrola rotundifolia	Sierras to Mendocino Co.
1185.	Pyrola secunda	Northern Sierras.
1185a.	Pyrola minor	Sierras, Kings River region.
1186.	Allotropa virgata	Sierras, Lake Tahoe region and north to Mendocino County.
1187. Pinedrops	Pterospora andromedea	Sierras, Coast Ranges, under pines or oaks.
1188. Snow-Plant	Sarcodes sanguinea	Sierras, from 4000 to 9000 feet, coming up through snow or soon after the snow melts. Indian toothache medicine.
1189. Indian Pipe; Pine Sap.	Monotropa uniflora	Sierras.
1190.	Monotropa fimbriata	Northern California.
1191.	Pleuricospora fimbriolata	Sierras, Lake County north.
1192.	Newberrya congesta	Mad River, Humboldt Co. and elsewhere in Coast Ranges. Rare.
1193.	Newberrya spicata	Mad River, Humboldt Co., higher elevations.
	LENNOACEAE	
1194.	Pholisma arenarium	Sandy soil at the base of hills near San Diego. Fleshy herb parasitic on roots, perhaps oak.
1195.	Ammobroma Sonorae	Close to Mexican border of State, in sandhills of the desert. Eaten by Indians, said to be excellent, resembling the sweet potato in taste, but more delicate.

THRIFT FAMILY PLUMBAGINACEAE

1196. Thrift; Sea Pink	Armeria vulgaris	Sandy beaches along the coast.
1197. Marsh Rosemary	Statice Limonium	Marshes Bay region.

PRIMROSE FAMILY PRIMULACEAE

1198. Mosquito Bills; Sailors' Cape	Dodecatheon Hendersonii	Coast Ranges, Sierras at low altitudes.
1199. Shooting Star	Dodecatheon patulum	Saline plains, Sacramento Valley.

1200.	Dodecatheon alpinum	Meadows, Sierras.
1201.	Dodecatheon Jefferyi	High Sierras.

Many other species of Dodecatheon have been named, but there are so many intermediate forms that they are not well defined. They have the same general characters of flowers and look very similar in appearance to any one but the specialist.

1202. Sierra Primrose	Primula suffrutescens	A handsome perennial with deep maroon-purple flowers with a yellow center. Exposed rocks of the high Sierras.
1203.	Androsace septentrionalis	San Bernardino County.
1204. Star Flower	Trientalis Europaea	Coast Ranges, Sierras.
1205. Pimpernel; Poor Man's Weather Glass	Anagalis arvensis	

Introduced from Europe. A common plant of the coast region and few flowers have the same shade of color. It is between scarlet and salmon color, occasionally varying to blue or white with a dark eye in the center. It closes up even before the approach of rain and does not open at all on cloudy or wet weather, hence the name Poor Man's Weather Glass or Shepherd's Barometer. The scientific name means to laugh, as the ancient Greeks considered it cured a torpid liver and made life cheery again. Its seeds are valuable food for song birds.

1206.	Centunculus minimus	To be looked for on low grounds. Inconspicuous tiny white flowers. A very minute plant (1 to 3 inches). Sacramento Valley.
1207. Sea-Milkwort	Glaux maritima	Borders of marshes, Bay region.
1208. Brookweed	Samolus floribundus	Brooks and marshes, Bay region and elsewhere. Not common.

STORAX FAMILY STYRACACEAE

1209. Storax	Styrax Californica	Shrub, 5 to 8 feet. Leaves ovate (1 to 3 inches long), pubescent beneath. Flowers in clusters, soft, downy white. Fruit fleshy at first, later dry and containing seed resembling a small nut. Foothills from Calaveras County north.

ASH FAMILY OLEACAE

1210. Flowering Ash.	Fraxinus dipetala	Along streams in the Coast Mountains.
1211. Oregon Ash	Fraxinus oregona	Southern Sierras to Oregon.
1212.	Menodora spinescens	A desert shrub with rigid, spiny branches, scale-like leaves and yellow flowers. Southeastern California.
1213.	Menodora scoparia	Similar, but smooth. Southeastern border of state.

INDIAN HEMP FAMILY APOCYNACEAE

1214. Dogbane or Indian Hemp	Apocynum cannabinum	Tall, with rather large leaves and clusters of greenish - white flowers. Stems yield a very tough fiber used for cordage by the Indians. Along streams throughout State.
1215. Low Dogbane	Apocynum androsaemifolium	

Low, with weak, spreading stems. Variable. Probably poisonous to sheep. Frequent in Sierras north to Mt. Shasta, Coast Ranges. Recently separated into a large number of closely allied species.

1216.	Cycladenia humilis	Sierras, Sierra Valley and elsewhere. Inner Northern Coast Ranges.
1217.	Cycladenia tomentosa	Plumas County. Rare.
1218. Periwinkle; False Myrtle	Vinca major	Escaped from gardens and appearing along our creeks as if a native.
1218a.	Amsonia brevifolia	Mohave Desert.

MILKWEED FAMILY ASCEPIADACEAE

The milky juice of the milkweeds is generally considered poisonous. Stock do not eat them under ordinary conditions unless there is a shortage of feed, as when being driven along roadways or in depleted or dry pastures.

The flowers are peculiar in structure, having the calyx and corolla lobes reflexed and the stamens each provided with a hood and a protruding horn. Pod-like fruits with numerous flat seeds, each provided with a tuft of silky down. This downy material makes a very soft pillow but much patience is needed in gathering it. Many of them are medicinal. The fiber was used by the Indians for cordage. The sticky juice of some has caoutchouc properties. The young sprouts coming from the base look not unlike asparagus and have been eaten in a similar manner.

1219.	Asclepias Mexicana	Not uncommon throughout the State.
1220. Showy milkweed	Asclepias speciosa	Along streams, Solano Co., Common Sierras.
1221.	Asclepias eriocarpa	Cure for rheumatism. Juice heals wounds. Mendocino to southern California.
1222.	Asclepias vestita	Mainly southern California.
1223.	Asclepias Fremontii	Upper Sacramento Valley.
1224.	Asclepias erosa	Santa Barbara.
1225.	Asclepias subulata	Wastes, deserts of southern California.
1225a.	Gomphocarpus cordifolius	Similar to Asclepias, but hoods without horns. Flowers dark purple-red. North Coast Ranges, Sierras.
1226.	Gomphocarpus tomentosus	Woolly flowers, greenish and dark maroon. Mt. Diablo, southern California. Asclepias California.

1227.	Gomphocarpus purpurascens	Hoods cleft on the back. Flowers purplish-red and flesh color. Rare. North Coast Ranges.
1228.	Philabertia linearis var.	A common species of the desert. Southern California.

GENETIAN FAMILY GENTIANACEAE

Includes many showy plants with a watery juice containing an intensely bitter tonic principle.

1229. Canchalagua	Erythraea Muhlenbergii	Rather common in the Bay region.
1230.	Erythraea tricantha	Coast Range valleys.
1231.	Erythraea venusta	Common, southern California.
1232.	Erythraea floribunda	Sacramento Valley.
1233.	Erythraea Douglasii	Eastern Sierras.
1234.	Microcala quadrangularis	Outer Coast Ranges. Introduced.
1235. Gentian	Gentiana Oregana	Coast Ranges, Bay Region north.
1236.	Gentiana Amarella var.	Sierras.
1237.	Gentiana simplex	Wet ground, higher Sierras.
1238.	Gentiana serrata var.	Variable, wet places, higher Sierras.
1239.	Gentiana Newberryi	Alpine characteristics, 2-4 inches. High Sierras.
1240.	Gentiana setigera	Damp soil, Mendocino Co.
1241.	Gentiana calycosa	Sierras, 9,000 feet.
1242.	Gentiana sceptrum var.	Mendocino plains.
1243.	Frasera speciosa	Sierras from Tuolumne north.
1244.	Frasera Parryi	Open pine forests, southern California.
1245.	Frasera nitida	Foothills Sierras, Mt. Hanna, Coast Ranges.
1246.	Frasera albicaulis	Modoc County.
1247. Buckbean	Menyanthes trifoliata	In shallow water or wet ground. Sierras.

PHLOX FAMILY POLEMONIACEAE

Well known by the large number of different kinds of Phlox grown in the gardens. Our wild species of the genus Gilia are also numerous and for the most part dainty and pretty-flowered. The family is represented from the deserts to the highest mountains.

1248. Phlox	Phlox occidentalis	Sierras.
1249.	Phlox Stansburyi	Foothills, eastern Sierras.
1250.	Phlox Douglasii and vars.	Variable, Sierras to Shasta, 5,000 to 10,000 feet.
1251.	Phlox caespitosa	High Sierras.
1252.	Phlox canescens	Eastern Sierras.
1253.	Phlox adsurgens	Mountains south of Trinity River.
1254.	Phlox austro-montana	San Jacinto Range, southern Sierras.

1254a. Salmon-colored Collomia	Collomia grandiflora	Frequent, Sierras; rare in Coast Ranges.
1255.	Collomia heterophylla	Shady places, Coast Ranges, Sierras.
1256.	Collomia linearis and var.	Eastern Sierras.
1257.	Collomia tenella	Sierras, south of Yosemite.
1258.	Gilia	

A large genus of exceedingly pretty wild flowers which form masses of coloring characteristic of our spring flora.

There are something like 50 species in the state when the group is considered in the broad sense and treated so as to include the sub-genera which for the most part are the sections of the original Gilia segregated and given full generic rank. There seems to be little uniformity of opinion in regard to the position of many of the species. We find them placed by some in one genus or section, and by others in another.

The following sections are frequently treated as genera: Dactylophyllum, Linanthus, Leptosiphon, Siphonella, Leptodactylon, Navarretia, Hugelia, Elaphocera, Eugilia, Ipmopsis, Courtoisia. Three additional generic names are also used, viz: Langloisia, Loeselia, Microsteris.

So many different forms occur within the species that the best botanists even with considerable material before them have been unable to make satisfactory identifications. We will not attempt to list the species. Those on exhibit will be found under 1285 A-Z.

1259. Jacob's Ladder	Polemonium carneum	A rare and beautiful species with showy blue or white flowers. San Mateo Co., Marin Co., north to Siskiyou.
1260.	Polemonium micranthum	Eastern Sierras, Sierra Co. and north.
1261.	Polemonium humile var.	High Sierras.
1262.	Polemonium caeruleum	Sierras.
1263.	Polemonium confertum	Among rocks of high peaks, Sierras, 10,000 to 13,000 feet.
1264.	Polemonium eximium	Kearsage Pass, southern Sierras.

PHACELIA FAMILY HYDROPHYLLACEAE

1265. Tomato Plant	Hydrophyllum capitatum and var.	Leaves resemble the tomato. An excellent range forage plant. Sierras; frequent, open hillsides in forest.
1266.	Hydrophyllum occidentale and var.	Mt. Diablo; Coast Ranges.
1267. Baby Blue-Eyes	Nemophila Menziesii and vars.	Low ground, Sacramento and San Joaquin plains westward through sandy fields to the coast.
1268.	Nemophila maculata	Large flowers, white petals with deep violet markings. Very handsome. Middle Sierras.
1269.	Nemophilia venosa	Mountains west of Yountville. Rare.
1270. Purple Nemophila	Nemophila aurita	Bay Region, rare; common south.
1271.	Nemophila racemosa	San Diego, Catalina Is.

1272.	Nemophila spatulata	High southern Sierras.
1273.	Nemophila inconspicua	South fork of the Kings River.
1274.	Nemophila quercifolia	
1275.	Nemophila pulchella	
1276.	Nemophila parviflora	Shady grounds throughout Sierras and Coast Ranges.
	Probably additional species.	
1277. Forage Phacelia	Phacelia tanacetifolia	Much dissected tansy-like foliage. Good forage. Seed on market. Sandy or gravelly banks, Sacramento Valley.
1278. Stinging Phacelia	Phacelia malvaefolia	Bay Region south.
1279. Hill Phacelia	Phacelia distans	Higher hills of the Coast Ranges, Napa Valley, south.
1280. Rattan's Phacelia	Phacelia Rattani and var.	Russian River Region.
1281. California Phacelia	Phacelia Californica	Common, rocky points. Bay Region. Extremely variable.
1282.	Phacelia nemoralis	In shade of open woods, Bay Region.
1283.	Phacelia Breweri	Mt. Diablo.
1284. Branching Phacelia	Phacelia ramosissima and var.	Dry regions, throughout State.
1285.	Phacelia cilata	Plains and valleys; especially abundant in grain fields.
1286.	Phacelia suaveolens	North Coast Ranges.
1287.	Phacelia divaricata	Coast Ranges of middle California.
1288.	Phacelia circinatiformis	Rare. Mt. Diablo and Mariposa County.
1289.	Phacelia sericea	Northeastern California.
1290.	Phacelia Douglasii	Sandy soils, Bay Regions.
1291.	Phacelia namatoides	Sierras.
1292.	Phacelia humilis and var.	Eastern Sierras.
1293.	Phacelia crenulata	Eastern Sierras south to the Colorado Desert.
1294.	Phacelia hydrophylloides	Dry, sandy or gravelly soils. Higher Sierras.
1295.	Phacelia procera	Mountain meadows, Sierras. 4,000 to 5,000 feet.
1296.	Phacelia Bolanderi	Mendocino County.
1297.	Phacelia Franklinii	Northeastern California.
1298.	Phacelia brachyloba	Common chaparral belt, southern Sierras.
1299.	Phacelia Menziesii	Northern Sierras.
1300.	Phacelia Davidsonii	Kern County.
1301.	Phacelia curvipes	Eastern foothills of Sierras.
1302.	Phacelia pusilla	Dwarf, eastern Sierras, under sagebrush.
1303.	Phacelia rotundifolia	Southeastern borders of California.
1304.	Phacelia Ivesiana	Deserts, southeastern California and elsewhere.

1305.	Phacelia Fremontii	Kern County, east.
1306.	Phacelia bicolor	Eastern Sierras, Sierra Co.
1307.	Phacelia grandiflora	Santa Barbara to San Diego.
1308.	Phacelia Parryi	Near San Diego and Los Angeles.
1309.	Phacelia longipes	Santa Barbara, rare.
1310. California Bluebell	Phacelia Whitlavia	In cultivation. Common canyons and foothills southern California.
1311.	Phacelia grisea	San Simon Bay, San Luis Obispo County.
1312.	Phacelia Cooperae	Santa Inez Mts., Santa Barbara County.
1313.	Phacelia campanularia	Southern California. Species in doubt.
1314. Whispering Bells	Emmenanthe penduliflora	Coast Ranges, Sierras.
1315.	Emmenanthe lutea	Frequent eastern Sierra foothills.
1316.	Conanthus aretioides	Eastern Sierra foothills.
1317.	Tricardia Watsoni	Close to eastern border of State in Truckee Valley and in southeastern California.
1318.	Romanzoffia Sitchensis	Coast Ranges near the coast.
1319.	Hesperochiron Californicus	Frequent in alkali soils. Eastern Sierras north and south.
1320.	Nama hispida	Southern border and east.
1321.	Nama demissa	Eastern Sierras, Mohave Desert, Tahoe region.
1322.	Nama Lobbii	On rocks, Tahoe region and northern Sierras.
1322a.	Nama Rothrockii	Southern Sierras, Kern River.
1323. Yerba Santa; Mountain Balm	Eriodictyon Californicum	Shrub, flowers white or pale blue. Coast Ranges, everywhere on deserts of southern California.
1324.	Ellisia membranacea	Shady places, Coast foothills and valleys to southern California.
1325.	Ellisia chrysanthemifolia	Bay region south.
1326.	Lemmonia Californica	Mountains, San Bernardino County.
1327.	Draperia systyla	Wooded ravines of the Sierras.
1328.	Coldenia Nuttallii	Along eastern borders of the State.
1329.	Coldenia plicata	Southeastern California.

1330. Alkali Heliotrope	Heliotropium curassavicum	Fleshy, flowers whitish, turning purple. Seashore and alkali lands of the interior, extending to grain fields where it is troublesome at harvest time, the fleshy stems choking up the self-binder. Throughout California except at very high elevation.
1331. Gromwell	Lithospermum Californicum	Sierras, Nevada County, north.
1332. Corn Gromwell	Lithospermum arvense	Introduced weed. Bay region.
1333.	Lithospermum pilosum	Sierras, Sierra Valley and elsewhere.
1334. Forget-me-not	Myosotis sylvatica	Occasional escape from gardens.
1334a.	Mertensia (Pulmonaria) Sibirica	Mountain streams, Sierras.

1335. Fiddlenecks Amsinckia spp.

About half a dozen species so-called because the arrangement of the flowers is on a stalk which bends like the neck of a fiddle soon after anthesis.

They are rough, coarse annuals with bristly leaves and deep yellow flowers. Of considerable value as forage on waste lands where they are common.

1336. Nievitas Cryptanthe

Mostly annual herbs with more or less bristly or rough leaves and clusters of small white flowers.

There are about 25 species in the state, extending from the inner Coast Ranges through the valleys to middle elevations in the Sierras as well as to the southern deserts.. They seem to revel in dry places.

The species are difficult to differentiate, and unless specimens are secured with fully developed nutlets, little progress can be made in classifying the species.

1337. Spring Snow Allocarya

Similar to Cryptanthe, but the stems diffuse-spreading. They occur in patches, usually in lot, wet ground which may or may not be alkaline. The areas are frequently sufficiently large to make the landscape as viewed from the train in April, appear as if a recent sprinkling of snow had taken place.

There are perhaps a dozen species on the coast and in the valleys and mountains.

1338. Pop-corn Flower Plagiobothrys

Insignificant, slender branching annual plants with minute whitish flowers in the axils and a rusty-looking calyx even when young.

About ten species. Coast, Sierras and valleys.

1339.	Lappula diffusa	Sierras.
1340.	Lappula floribunda	Sierras north and south.

1341. Hound's Tongue Cynoglossum grande

A large, coarse plant with sprays of deep blue flowers and a bur-like fruit. Coast Ranges, north.

1342.	Cynoglossum viride	Similar, Sierras.
1343.	Cynoglossum occidentale	Sierra Valley, north.
1344. Comb-seed	Pectocarya lateriflora	Southern California.
1345.	Pectocarya penicillata	Eastern Sierras. Rare on coast. Napa Valley.
1346.	Pectocarya pusilla	Eastern Sierras. Rare on coast. Napa Valley.

1347.	Pectocarya setosa	Eastern side, southern Sierras.
1348.	Harpagonella Palmeri	To be looked for along borders. Now found on Guadalupe Island.

1349. Oreocarya

Perhaps a half dozen species, usually on rocky places in the mountains and deserts. Rather large flowers in clusters on erect stems.

1350.	Piptocalyx circumscissus	Common desert plant, eastern Sierras, foothills.
1351.	Piptocalyx dichotomus	
1352.	Eremocarya micrantha	Owens valley and deserts.
1353.	Eremocarya lepida	San Jacinto mountains, southern Sierras.

MORNING-GLORY FAMILY CONVOLVULACEAE

The family is represented in California chiefly by vines. It contains one of our most highly prized vegetables, the sweet potato, *Ipomoea Batatas.* What is generally considered the worst weed in the state is the Field Morning Glory, *Convolvulus arvensis.* It provides also the purgative medicines, Jalap and Scammony. The annual Morning Glory, *Ipomoea purpurea,* of many gorgeous colors, is a favorite in the gardens and occassionally found in California as an escape.

1354. Field Morning-Glory	Convolvulus arvensis	Introduced. Troublesome weed in cultivated land. Herbage smooth, flowers white, pinkish on the outside.
1355.	Convolvulus pentapetaloides	Also introduced. San Joaquin Valley. Herbage hairy, flowers purplish.
1356. Hedge Bindweed	Convolvulus sepium	Introduced, Suisun marshes and elsewhere.
1357. Shore Morning-Glory	Convolvulus Soldanella	Sandy beaches all along the coast.
1358.	Convolvulus villosus	Dry slopes of the Coast Ranges, Sierras.
1359.	Convolvulus subacaulis	Dry hills of valley of Coast Ranges.
1360.	Convolvulus luteolus and vars.	Common throughout the Coast Ranges.
1361.	Convolvulus longipes	Inyo County, south.
1362.	Convolvus Berryi	Kings River region.
1362a.	Convolvus incanus	Reported as being troublesome in Imperial Valley.

1363. Cressa cretica

Covering thousands of acres of valley alkali lands. A valuable pasture plant, light-gray, hairy leaves on short, erect stems, not twining. Flowers whitish, small.

1364. Dodder Cuscuta

Our worst enemy of alfalfa, sometimes seriously interfering with the crops of hay. Well known by its golden-threaded, climbing leafless stems which later bear numerous clusters of whitish flowers. There are many species both native and introduced. They are all parasitic on other plants. Some of the species grow on a large number of plants not closely related, while others confine themselves to a single host plant.

The Marsh Dodder, *Cuscuta salina,* is unusually striking with its great masses of gold in late spring in the salt marshes of the Bay region. Particularly abundant after leaving the boat at Sausalito. Other species may be found in the valleys, coast mountains and the deserts, and not uncommon in the Sierras.

1365.	Dichondra repens	Introduced in several places in the Bay region.

POTATO FAMILY SOLANACEAE

An interesting family furnishing a large assortment of edible foods, drugs and narcotics. Potato, egg-plant, peppers, ground-cherry, tomato, Henbanes, Belladona, Thorn-apple and Tobacco.

1366. Nightshade	Solanum cleagnifolium	Weed, Imperial Valley.
1367.	Solanum nigrum and vars.	A weed occurring in many different forms. Regarded as poisonous but berries apparently harmless when ripe.
1367a.	Solanum rostratum	Introduced, San Diego County.
1368.	Solanum Xantii and var.	Inner Coast Ranges and Sierras to southern California.
1369.	Solanum umbelliferum and var.	Hills of the Coast Ranges.
1370.	Capsicum baccatum	Wild along the Mexican frontier.

A low plant with creeping rootstocks, in open, sandy or gravelly situations. Good sized berries. Still gathered by Indians in July and August. Mono Lake region north and south, frequently extending well up into the mountains.

1371. Indian Cherry	Chamaesaracha nana	
1372. Ground Cherry	Physalis crassifolia	San Bernardino region and south to deserts.
1373.	Physalis Wrightii	Imperial Valley.
1374.	Lycium Cooperi	San Bernardino to Mohave Desert.
1375. Thorn-Apple	Datura Stramonium	Introduced around towns, probably poisonous.
1376. Tolguacha	Datura meteloides	Common in southern California.
1377. Purple Thorn-Apple	Datura Tatula	Introduced. Russian River region.
1377a.	Datura discolor	Introduced in Imperial Valley region.
1378. Indian Tobacco	Nicotiana Bigelovii	Coast Ranges and interior valley.
1379.	Nicotiana attenuata	Throughout California.
1380.	Nicotiana trigonophylla	Rocky places, borders washes in southern mountains and deserts.
1381. Tree Tobacco	Nicotiana glauca	Sometimes very large. Ravines through grain fields from the mountains along creeks; interior valley and coast. Rarely eaten by stock, but deleterious.
1382.	Nicotiana rustica	Reported from California, probably an escape.
1382a.	Nicotiana Clevelandi	Dry stream beds, near San Diego.
1383.	Petunia parviflora	Reported as from seashore; Monterey south.
1384. Belladona	Atropa Belladona	Expensive drug. Now grown in parts of California — Castro valley, San Leandro.

FIGWORT FAMILY SCROPHULARIACEAE

A large family represented in California by about twenty genera and many species.

The herbage of many is bitter and we find large areas of pasturage in the valleys practically worthless for forage on account of their close abundance.

The common foxglove, *Digitalis purpurea,* an European plant, is grown in the State and should be profitable at this time. Its market value per pound is about 40 cents.

Some of the members have very beautiful flowers, e. g., *Mimulus, Castilleia* and *Pentstemon.* The majority, however, are ill-smelling.

1385. Common Mullein	Verbascum Thapsus	Introduced. Throughout the State, sometimes spreading extensively. Of some value medicinally.
1386. Moth Mullein	Verbascum Blattaria	Introduced. Coast Ranges and Sierra foothills.
1387.	Verbascum virgatum	Introduced sparingly.
1388. Toad Flax	Linaria Canadensis	Not common in Bay region.
1389. Butter and Eggs	Verbascum vulgaris	Introduced in a few places. Bay region.
1389a.	Linaria spuria	Weed, southern California.
1390. Snapdragon	Antirrhinum virga	Occurs in a few places. Bay region north.
1391.	Antirrhinum glandulosum	Coast Ranges south.
1392.	Antirrhinum vagans and vars.	Wooded hills, mountains of Coast Ranges.
1393.	Antirrhinum strictum	Coast Ranges, Monterey south.
1394.	Antirrhinum cornutum	Sacramento Valley. Very rare.
1395.	Antirrhinum leptaleum	Bank of streams, Mariposa to Kern Counties.
1396.	Antirrhinum Coulterianum	Southern Sierras.
1397.	Antirrhinum Nuttallianum	Coast, southern California.
1398.	Mohavea breviflora	Inyo Mountains.
1399. Figwort	Scrophularia Californiaca and vars.	Frequent throughout State, coast and Sierras.
1400. Chinese Houses	Collinsia bicolor	Throughout the State, except in deserts.
1401.	Collinsia tinctoria	Coast Ranges and southern Sierras.
1402.	Collinsia sparsiflora and vars.	Wet places on hillsides, Bay region.
1403.	Collinsia bartisiaefolia	Sands, seashore and interior coast, north and south.
1404.	Collinsia Greenei	High rocks, Sonoma county.
1405.	Collinsia Wrightii	Kern county.
1406.	Collinsia Torreyi	Mono county and adjacent high mountain counties.
1407.	Collinsia Parryi	San Bernardino county, south to deserts.
1408.	Collinsia Childii	Kern county.
1409.	Collinsia Rattani	Trinity River.

1410.	Collinsia grandiflora	Mendocino county.
1411.	Tonella tenella	Slender and small, flowers minute. Coast Ranges.

1412. Beard Tongue — Pentstemon

A large genus of about thirty species distributed from the Coast Range hills to the high Sierras, with a few semi-shrubby ones in the desert regions. The flowers are showy and easily recognized and may be red, blue, purple, white, or yellow in many different shades.

1413. Monkey-Flower — Mimulus

A large genus of about thirty species in the State, with yellow, pink or red flowers. The masses of yellow so abundant by cold springs or streams in the Sierras are frequently produced by some one or other of the species of Mimulus. Jepson describes ten species with red, crimson, or scarlet flowers and five species with yellow flowers in his Flora of Western Middle California. Hall mentions eleven in his Botany of the San Jacinto Mountain. The Botany of the Death Valley expedition lists fourteen species. They are difficult of determination and good specimens both in flower and fruit should be collected.

1414. Bush Monkey-Flower	Diplacus glutinasus and vars.	Sticky shrub with buff or salmon-colored flowers. Common, canyons in Coast region.
1415.	Diplacus longiflorus	Edge of chaparral belt, southern California.
1416.	Stemodia durantifolia	Sticky, hairy plant 6 inches to a foot high. Sessile, purple flowers, quarter of an inch long. Southern borders.
1417. Hedge-Hyssop	Gratiola Virginiana	Sierras.
1418.	Gratiola ebracteata	Wet valleys of north Coast Ranges.
1419.	Ilysanthes gratioloides	Muddy shores. Interior valley and Sierras.
1420.	Limosella aquatica	1 to 2 inches tall. Muddy shores of ponds and lakes. Coast and Sierras.
1421.	Synthyris rotundifolia	Northern Coast Ranges.
1422.	Synthyris reniformis	Modoc county.
1423. Speedwell	Veronica Buxbaumii	Introduced. Lawns and gardens.
1424.	Veronica scutellata	Plumas county, Yosemite valley and elsewhere.
1425.	Veronica serphyllifolia	Plumas county.
1426. Neckweed	Veronica peregrina	Common in low places throughout the State. Weedy tendencies.
1427. Brooklime	Veronica Americana	By springs and streams in mountains, Coast and Sierras.
1428.	Veronica alpina	High Sierras.

1429. Painted Cup — Castilleia

A conspicuous group of plants with showy bracts surrounding the flowers. The species are extremely variable as to size, width of leaves and color of flowers. The same species may have yellow, crimson, scarlet or white flowers.

They may be found from the coast to the highest mountains. It is difficult to estimate the number of the species in the State as many names have been given to forms sometimes placed in the genus *Orthocarpus*. There are at least a dozen species.

Masses of crimson from *Castilleia miniata* are sometimes seen on the hillsides and meadows on the eastern Sierras. *Castilleia parviflora* is abundant among the sagebrush.

The local floras by Jepson, Hall and Abrams include most of the species.

1430. Owl's Clover; Cream Sacs — Orthocarpus

Similar to Castilleia and emerging into it through certain species which present some of the characters of both. Great masses coloring the landscape are to be seen in the pastures during April. They are not particularly troublesome in the grain but come in after the fields have been allowed to go back into pasture for several years as is the custom and ranged with sheep. They are not profitable from the farmer's standpoint, however, as they are not liked by stock.

There are about twenty-five species in the State, on the coast, great Interior valley and on up into the mountains. For lack of space and time to list the species, we must refer you to the local floras.

1431.	Adenostegia rigida	Southern California, Mt. Hamilton only in middle California.
1432.	Adenostegia pilosa	Dry hills, Los Gatos to northern California, where it is abundant.
1433.	Adenostegia Pringlei	Mt. St. Helena.
1434.	Adenostegia maritima	Sandy salt marshes along the coast.
1435.	Adenostegia mollis	Interior salt marshes.
1436.	Adenostegia tenuis	Dry sandy soil, eastern Sierras.
1437.	Adenostegia Kingii	Eastern base, Sierras.
1438.	Adenostegia canescens	Eastern base, Sierras.
1439.	Adenostegia Nevinii	San Jacinto Mountain.
1440. Indian Warrior	Pedicularis densiflora	Wooded hills throughout western California.
1441.	Pedicularis semibarbata	Open woods, Sierras.
1442.	Pedicularis racemosa	Sierra Valley and north.
1443. Elephant's Head	Pedicularis Groenlandica	Tahoe region, north.
1444.	Pedicularis atollens	Very striking alpine meadow plant. Sierras.
1445.	Bellardia Trixago	Found as an escape near Martinez.
1446.	Mimetanthe pilosa	Resembles Mimulus. Moist stream and river beds. Throughout Coast Ranges and interior valley.

BROOM-RAPE FAMILY OROBANCHACEAE

Interesting plants living on the roots of other plants. Not needing to accumulate starch through the air, they are devoid of green color and true leaves. Some are destructive to cultivated crops like hemp, tobacco, tomatoes, clover. Other names such as Cancer-root, Hell-root, Devil's-root, Clover Devil, Herb-bane, are given to them.

Formerly used to apply to ulcers and cancers. Rich in tannic acid; used in intestinal troubles. Rootstocks of some eaten by Indians.

1447.	Monniera rotunditolia var.	San Joaquin Valley. In shallow water and mud.

1448. Naked Broom-Rape	Aphyllon uniflorum	Flowers odor of violets. On many different plants; widely distributed throughout State, coast valleys and Sierras.
1449.	Aphyllon fasciculatum	On plants belonging to many different families. Eriogonum, Phacelia, Artemisia. Throughout the State.
1450.	Aphyllon comosum	On Artemisia, Sambucus, etc. From Mohave desert to Oregon coast and interior.
1451.	Aphyllon Californicum	Coast to Sierras.
1452.	Aphyllon tuberosum	Dry ridges of coast mountains.
1453.	Aphyllon Ludovicianum	Deserts, southern California. Rootstock bitter, but eaten by Mohave Indians.
1453a.	Aphyllon Cooperi	Inyo county.
1454.	Boschneakia strobilacea	On roots of Manzanita. Coast Range ridges.

BLADDERWORT FAMILY UTRICULARIACEAE

Plants immersed in slow waters with very finely divided leaves and on them bladders which trap insects.

1455. Bladderwort	Utricularia vulgaris	Lakes and pools, Sierras, Bay region.
1456.	Utricularia minor	Indian Valley, Sierras, Whitney Meadows.
1457.	Utricularia intermedia	Plumas county.

TRUMPET CREEPER FAMILY BIGNONIACEAE

1458. Unicorn Plant	Martynia proboscoides	Escape, southern California and elsewhere.
1459. Desert Willow	Chilopsis linearis	Shrub or tree. Frequent in desert regions and when not in flower, looks very much like a narrow, gray leaved willow. Flowers large, white, or purplish. Wood hard.

MINT FAMILY LABIATAE

A very large family containing such plants as Marjoram, savory, thyme, mints, cat-mint, motherwort, horehound, pennyroyal, peppermint, spearmint. Animals do not care for such highly seasoned food and so we find them left undisturbed even on the most depleted range lands. None of them, however, are poisonous and several have medicinal value.

1460. Tule-Mint	Mentha Canadensis	Marshes, Bay region.
1461. Pennyroyal	Mentha Pulegium	Introduced, Bay region and valleys.
1462. Peppermint	Mentha piperita	Introduced along streamlets, Bay region and elsewhere.
1463.	Mentha citrata	Introduced, West Berkeley, also Mecca, southern California.

1464. Spearmint	Mentha spicata	Introduced. Wet places. Bay region and elsewhere.
1465. Water Horehound	Lycopus Americanus	Sacramento River.
1466.	Lycopus lucidus	Salt marshes, Bay region.
1467. Mountain Mint	Koellia Californica	Dry ground, coast and Sierras.
1468.	Monardella Douglasii	Strong scented. Bay region north to Yuba Co.
1469.	Monardella Breweri	Inner Coast Ranges.
1470.	Monardella lanceolata	Sierra foothills.
1471.	Monardella candicans	Sierra foothills.
1472.	Monardella leucocephala	Plains of the San Joaquin Valley.
1473.	Monardella undulata	Along coast.
1474.	Monardella villosa and vars.	Dry and wooded grounds throughout state.
1475.	Monardella nana	Near San Diego.
1476.	Monardella macrantha and vars.	Southern California, San Jacinto mountains and adjacent deserts.
1477.	Monardella viridis	Napa county.
1478.	Monardella hypoleuca	San Bernardino county.
1479.	Monardella linoides	Head of Mohave River.
1480.	Monardella Palmeri	Among redwoods, Santa Lucia Mountains.
1481. Yerba Buena	Micromeria Chamissonis	Woods near the coast, Humboldt to southern California.
1482. Pitcher Sage	Sphacele calycina and vars.	Coast Ranges south.
1483.	Acanthomintha lanceolata	Bay region south.
1484.	Pogogyne Douglasii	Bay region.
1485.	Pogogyne parviflora	Reported as from Bay region to Mendocino Co.
1486.	Pogogyne serpylloides	Coast Ranges, Sierras.
1487.	Pogogyne ziziphoroides	Sacramento Valley.
1488.	Pogogyne nudiuscula	Near San Diego.
1489. Chia	Salvia Columbariae	Common on dry slopes, Coast Ranges and Sierras.
1490. Thistle Sage	Salvia carduacea	San Joaquin Valley and adjacent foothills, southern California.
1491. Black Sage	Salvia mellifera	Mt. Diablo south.
1492. Bee Sage	Salvia Californica	Southern California.
1493. Crimson Sage	Salvia spathacea	Mt. Diablo south.
1494. Ramona	Salvia Sonomensis	Mountain species, coast and Sierras.

Probably half a dozen additional species described by authors under Salvia, Audibertia, Romona or Poliomintha. The group is not as yet well defined.

1495.	Lophanthus urticifolius	Common through the Sierras. Occasionally in Coast Ranges.
1496. Skull-Cap	Scutellaria Californica	Coast Ranges, Sierras.

1497.	Blue Skull-Cap	Scutellaria tuberosa and var.	Coast Ranges to southern California. Near coast.
1498.		Scutellaria galericulata	Sierras, Plumas county.
1499.		Scutellaria Bolanderi	Sierras, Indian Valley, Plumas county, Clarks, Mariposa county.
1500.		Scutellaria angustifolia	Sierras, Placer county, north.
1501.		Salazaria Mexicana	Shrub; flowers purple or whitish. Mohave desert.
1502.	Self Heal	Brunella vulgaris	Medicinal as gargle for throat trouble. A cosmopolitan plant. Bay region and elsewhere.
1503.	Horehound	Marrubium vulgare	Introduced in all parts of the state as a weed.
1504.	Hedge Nettle	Stachys pycnantha	Bay region south.
1505.		Stachys albens	Inner Coast Ranges.
1506.		Stachys ajugoides and var.	Coast Ranges and valleys. Common.
1507.		Stachys bullata	Widely distributed on coast and Sierras.
1508.		Stachys Chammissonis	Bay region.
1509.		Stachys Californica	Santa Cruz mountains.
1510.	Blue-Curls	Trichostema laxum	North and inner Coast Ranges.
1511.	Vinegar weed	Trichostema lanceolatum	A valuable bee plant. Low hills of the Coast Ranges through the valleys to Fresno county, where it is abundant.
1512.		Trichostema lanatum	Southern Coast Ranges.
1513.		Trichostema oblongum	Sierras.
1514.	Catnip	Nepeta cataria	North Coast Ranges.
1515.	Henbit	Lamium amplexicaule	Introduced. Sonoma Co.
1516.	Germander	Teucrium occidentale	Reported as from the Sacramento Valley.
1517.		Teucrium Cubense	Southern California.

VERVAIN FAMILY VERBENACEAE

1518.	Blue Vervain	Verbena hastata	Sacramento valley.
1519.	Common vervain	Verbena prostrata	Throughout western California and south.
1520.		Verbena bracteosa	Alkaline soil, San Joaquin valley and elsewhere. Weed.
1521.		Lippia nodiflora	A creeping plant used for lawns and to prevent soil erosion; alkaline soils. Interior valley.
1522.		Lippia lanceolata	Muddy banks of the delta region, Sacramento River.

PLANTAIN FAMILY PLANTAGINACEAE

1523.	Common Plantain	Plantago major and var.	Introduced weed. Common. Broad leaves, seed stalks fed to canaries.

1524. Rib-grass	Plantago lanceolata	Narrow ribbed leaves. Used as a forage in Great Britain. Has become a pest in coast dairy pastures. Good sheep feed. Introduced, common everywhere.
1525. Sea Plantain	Plantago maritima	Cliffs and rocks near the sea.
1526.	Plantago Patagonica and var.	Hillsides throughout western California and extending elsewhere in different forms. Used by Indians in making soup.
1527.	Plantago Bigelovii	Alkaline fields. Interior valley.
1528. Desert Plantain	Plantago fastigiata	Abundant, Colorado desert. Good forage.
1529.	Plantago eriopoda	Shasta river region.

FOUR-O'CLOCK FAMILY NYCTAGINACEAE

1530. Four-o'clock	Mirabilis multiflora and var.	Southern California.
1531.	Mirabilis Greenei	Mountain sides, Siskiyou county.
1532.	Mirabilis Californica	Southern California.
1533.	Mirabilis laevis	Southern California.
1534.	Allionia incarnata	Southern deserts.
1535. Sand Verbena	Allionia umbellata	Flowers rose-purple. Along entire coast line.
1535a. Yellow Sand Verbena	Allionia latifolia	Along seashore, Monterey north.
1536.	Allionia maritima	Santa Barbara to San Diego coast line.
1537.	Allionia turbinata	Mohave Desert region.
1538.	Allionia nana	Inyo mountains.
1539.	Allionia crux-maltae	May reach border; sands, eastern Sierras. A beautiful pink flower.

BUCKWHEAT FAMILY POLYGONACEAE

1540. Mountain Sorrel	Oxyria digyna	Among rocks, high Sierras.
1541. Docks	Rumex	

A dozen or more species, all of the same general appearance and can be recognized by their resemblance to the common dock, *Rumex crispus,* a troublesome weed. Sorrel, *Rumex acetosella,* is abundant on the coast and has leaves with an acid taste. The roots are pernicious in cultivated land. It revels in acid soils and applications of lime will help better plants and discourage the sorrel.

1542. Knotweeds Polygonum

About twenty-five species in the State, most of which can be recognized from their resemblance to the weedy and very common species, *Polygonum aviculare,* called Yard Grass, Goose Grass, Door Weed, and Knot-grass. The Black Bindweed of the gardens is *Polygonum convolvulus.* The Water Knot-weed, *Polygonum amphibium,* has long coarse jointed stems and large leaves growing at first in the water and reaching out by its trailers for a long distance on banks. *Polygonum Shastense* is a very common plant in the Sierras with its woody, prostrate branches in loose granite soil. *Polygonum bistorta,* frequent in the meadows in the Sierras, has white or pink-tinged heads of flowers.

1543.	Nemacaulis Nuttalli	Sandy beaches near San Diego.

1544. Wild Buckwheat — Eriogonum

A very large genus with about fifty species in California, found growing from the rocky ledges of the coast to the high peaks of the Sierras. Yellow or yellow tinged with brown, or red, are the prevailing colors in the genus. The flowers are mostly in globular clusters.

The Indians used the species in a number of different ways, making a strong tea from the leaves, which was employed for an eyewash, bronchitis, grippe, pain in the stomach, and headache.

1545.	Oxytheca hirtflora	A slender annual with the leaves in a rosette at the base.
1546.	Oxytheca inermis	Mt. Diablo.
1547.	Oxytheca trilobata	San Bernardino county, San Jacinto region.
1548.	Oxytheca emarginata	San Jacinto mountains.
1549.	Oxytheca caryophylloides	
1550.	Chorizanthe	

Low branched annuals flowering in summer on dry soils. The involucres are variously armed with teeth, spines or awns. About twenty-five species in the State and seven in the Coast Ranges.

1551.	Lastarriaiaea Chilensis	Introduced from Chile. San Joaquin Valley.
1552.	Pterostegia drymarioides	Open places, Mt. Diablo to southern California.

AMARANTH FAMILY AMARANTACEAE

1553. Bristly Pigweed	Amarantus retroflexus	Weed common in gardens and elsewhere.
1554. Tumble Weed	Amarantus albus	Common, fields and waste places.
1555.	Amarantus Californicus	South Coast Ranges.
1556.	Amarantus deflexus	Introduced. Bay region.
1557.	Amarantus Palmeri	Imperial Valley.
1558.	Amarantus fimbriatus	San Diego eastward.
1559.	Cladothrix oblongifolia	Colorado Desert region.

GOOSEFOOT FAMILY CHENOPODIACEAE

1560.	Nitrophila occidentalis	Marshes, San Joaquin Valley and elsewhere. Alkali situations.
1561. Beet	Beta vulgaris	Escape in marshes, Bay region and elsewhere.
1562.	Aphanisma blitoides	Near San Diego.
1563. Goosefoot, Smooth Pig weed	Chenopodium	

These very common plants are seen almost everywhere near cultivation. Most of them have medicinal value. The seeds are used as a vermifuge. They are rich in oil. Mexican Tea, C. ambrosioides; Wormseed, C. anthelminticum. C. californicum is used as a substitute soap. C. album, the Lamb's-quarters makes very palatable greens. The seed of C. Quinoa is largely used in Peru as a cereal. Perhaps ten species in California. The species are difficult to determine unless well matured specimens are gathered.

1564.	Monolepis chenopodiodes	Sierra County and northeastern California.

1565.	Monolepis spathulata	Mono Pass, Sierras and Sierra County.
1566.	Monolepis pusilla	Alkali flats, northeastern California.
1567.	Roubieva multifida	Sand hills, Bay region, introduced from Peru.

1568. Saltbushes — Atriplex

A large genus of salty tasting herbs or those of the deserts quite shrubby. They are important forage plants on the range. The fruits are the distinguishing characters used in differentiating the species so well matured specimens should be collected. Most abundant in desert foothill regions or in saline situations near the sea. A semibaccata, the Australian saltbush, has established itself widely in some parts of the San Joaquin Valley. About twenty-five species in the State.

1569. Winter Fat or White Sage	Eurotia lanata	A valuable forage plant barely entering California from the east in Modoc County and south.
1570. Hop sage	Grayia spinosa	Valuable range forage, northeastern California, sagebrush areas.
1571. Pickle weed	Salicornia ambigua	Abundant in salt marshes sometimes covering hundreds of acres. Round fleshy jointed stems. Marshes and Interior valley.
1572.	Salicornia ambigua	Northeastern California, Tehachapi Lake.
1573. Kern Greasewood	Allenrolfea occidentalis	Alkaline soil of Great Interior Valley and elsewhere.
1574. Sea Blite	Suaeda Californica	Perennial. Sandy beaches, Bay region, seldom collected.
1575.	Suaeda torreyana	Perennial alkali soil, interior valley.
1576.	Suaeda suffrutescens	Alkali soils, Southern California.
1577.	Suaeda diffusa	Annual alkali valleys, northeastern California.
1578.	Suaeda depressa and var.	Eastern Sierras.
1579. Desert Greasewood	Sarcobatus vermiculatus	Stiff branching shrub, covers large stretches of alkali areas. Eastern Sierras and Southern California. Spines tend to poison the flesh when pricked by them.
1580.	Sarcobatus Baileyi	Smaller. Inyo and Mono counties only, in California.

BATIDEAE

1581.	Batis maritima	Near San Diego.

LAURACEAE

1582. Mountain Laurel (Pepper Wood)	Umbellaria californica	Shrub or tree. Coast Ranges and Sierras. Fruits eaten by stock, extremely bitter, leaves pungent, well known.

LEATHERWOOD FAMILY THYMELACEAE

1583. Leatherwood	Dirca occidentalis	Northern slopes in canyons.

SPURGE FAMILY EUPHORBIACEAE

1584. Turkey mullein	Eremocarpus setigerus	Abundant in waste places, and fallow land. When eaten by sheep forms hairy balls in the stomach, sometimes disastrously. Indians used this plant to stupefy fish by its odor before trying to catch them by hand.
1585.	Croton californicus	Sandy hills near the ocean Bay region. Spanish medicine for rheumatism.
1585a.	Croton tenuis	San Diego County.
1586.	Bernardia Myricaefolia	Headwater of the Mojave.
1587.	Acalypha californica	San Diego County, near boundary monument, or stream banks.
1588.	Stillingia linearifolia	San Diego County and San Bernardino County.
1589.	Stillingia annua	Deserts southeastern California.
1590. Spurges	Euphorbia (Chamaesyce)	

A rather large genus with about 20 species in the State. Jepson described nine with several varieties. Parish reports six from the region of the Salton Sink. The spurges have medicinal properties, expectorants, cathartic or in large quantities emetic. Some are poisonous. E. serphyllifolia and ocellata are persistently regarded as remedies for snake-bite.

BUFFALO BERRY FAMILY ELEAGNACEAE

1591. Buffalo Berry	Sheperdia argentea	Mono Lake region.

NETTLE FAMILY URTICACEAE

1592. Small nettle	Urtica urens	Introduced weed.
1593. California nettle	Urtica lyalli var.	Marin County and north.
1594. Creek nettle	Urtica holosericea	Along streams throughout State.
1595.	Urtica breweri	Frequent about Los Angeles.
1596.	Hesperocnide tenella	Napa County south.
1597. Pellitory	Parietaria debilis	Southern California and elsewhere.

SYCAMORE FAMILY PLATANACEAE

1598.	Platanus racemosa	A frequent tree along streams in the interior valley.

BUXACEAE

1599.	Simmondsia californica	Dry hillsides, southern California, San Diego.

WATER STARWORT FAMILY CALLITRICHACEAE

1600. Water Fennel	Callitriche palustris	Aquatic, cold pools or slow streamlets. Napa Valley, Marin County, Gilroy.
1601. Water Fennel	Callitriche marginata	Napa Valley southward to the San Joaquin Valley and southern California.

LIZARD-TAIL FAMILY SAURURACEAE

1602. Yerba Mansa — Anemopsis californica

Herbs with aromatic rootstock and somewhat spicy leaves. Stems hollow, flowers in conical spike. The lower Sacramento and San Joaquin Valleys, south Coast Ranges. An infusion of the root is used by Spanish-Californians both as a liniment for skin troubles and as a tea for blood disorders.

HORNWORT FAMILY CERATOPHYLLACEAE

1603. Hornwort — Ceratophyllum demersum

Aquatic, submerged, fragile herbs, in ponds and lakes. Santa Cruz, San Francisco, and northward.

BIRCH FAMILY BETULACEAE

1604. Hazelnut	Corylus rostrata	Hill country, Coast Ranges and Sierra Nevada. Leaves roundish.
1605. Mountain Birch	Betula fontinalis	Sierra Nevada. Common on all mountain streams at about 4,500 to 9,000 feet. Commonly a slender-stemmed, graceful, shrub-like tree.
1606. White Alder	Alnus rhombifolia	Foliage pale-green. Western slopes of Sierra Nevada, San Bernardino, San Jacinto and Cuyarnaca mountains. Little known of the range limits.
1607. Red Alder; Oregon Alder	Alnus oregana	Coast Ranges to Santa Inez mountains near Santa Barbara. Deep, cool canyons or moist flats along coast.
	Alnus oregana var. tenuifolia	Forming shrubby thickets. Sierra Nevada, 6,000 to 7,000 feet.

SWEET-GALE FAMILY MYRICACEAE

1608. Wax Myrtle	Myrica Californica	Small evergreen trees or shrub. Leaves dark green, glossy. Crushed leaves exhale aromatic odor.
1609. Sweet Bay	Myrica Hartwegii var.	A deciduous shrub of the Sierra Nevada.

WILLOW FAMILY SALICACEAE

1610. Yellow Willow	Salix lasiandra	Stream banks in Coast Ranges, Sacramento and San Joaquin Valley and Sierra Nevada. 20 to 45 feet high. Trunk dark brown, roughly fissured. Probably shoots would prove to make good basket rods.
1611. Red Willow	Salix laevigata	Along living streams throughout State.
1612. Black Willow	Salix nigra	River banks, Great Valley to southern California. No economic value.
1613. Sandbar; Silverleaf Willow	Salix sessilifolia	Stream beds of Coast Ranges and Sierra Nevada foothills.
1614. Longleaf Willow	Salix longifolia	Stream beds in valleys and foothills throughout the State and into mountains to 4,000 feet.
1615. Arroyo Willow	Salix lasiolepis	In southern range at a low altitude; where fuel timber is scarce, it is locally used for fuel.
1616. Nuttall Willow	Salix flavescens	Shrub, 2 to 15 feet high. Sierra Nevada to seaward Coast Ranges.
1617. Velvet Willow	Salix sitchensis	California coastal region, Sierra Nevada. Leaves with dense covering of shiny white silky hair on their under surface.
1618. Common Cottonwood	Populus fremontii	Living streams, Great Valley, Sierra Nevada foothills, south of Coast Ranges. Locally used for fuel, no other commercial use. Of value for protecting and holding soft, shifting banks of bottomland. On western streams where it is the only tree that marks their meandering courses.
1619. Black Cottonwood	Populus trichocarpa	Along streams, Sierra Nevada, Coast Range valleys. Large logs obtainable from the well grown trees. Give clear, wide lumber.
1620. Black Cottonwood	Populus trichocarpa var. cupulata	From San Diego northward.
1621. Balm-of-Gilead; Balsam Poplar "Tacansahac"	Populus balsamifera	Light weight wood, soft. Large trunks give clear wide lumber. Used for cooperage in place of pine.

1622. Aspen	Populus tremuloides	Best known and most extensively distributed of our trees. Sierra Nevadas. Used for paper pulp while its freedom from odor makes it very useful in its western range for fruit box boards.

WALNUT FAMILY JUGLANDACEAE

1623. California Black Walnut	Juglans Californica	Shrub or tree southern California to San Bernardino and the Sierra, Santa Ana.

OAK FAMILY—FAGACEAE—CUPULIFERAE

1624. Valley Oak; White Valley Oak; Water Valley Oak; Roble Valley Oak	Quercus lobata	Not in valleys facing sea. On floor of Sacramento, San Joaquin and Coast Range valleys. The branches end in long, slender, cord-like branchlets which sometimes sweep the ground. Largely cut for fuel.
1625. Brewer Oak	Quercus Breweri	West slope of Sierras at lower edge of yellow pine belt. Of no commercial use, but important as effective cover for rocky slopes, as water runs off barriers.
1626. Oregon Oak; Post Oak; Garry Oak;	Quercus Garryana	Garry oak is the only timber oak of the northwest coast country, and for this reason it deserves the forester's careful attention.
1627. Sadler Oak; Scrub oak;	Quercus Sadleriana	Shrub under six feet in height. Has value as a slope cover. Mountain slopes in dry, rocky, and gravelly soil. Variable.
1628. Blue oak; Mountain oak; Iron oak;	Quercus Douglasii	Common on hot interior foothills. Sierra Nevada and Coast Ranges.
1629. Leather oak;	Quercus durata	San Carlos Range and northward to Napa Range. Low spreading shrub.
1630. Maul oak; Canyon Live Oak;	Quercus chrysolepis	Furnishes most valuable wood of all our species, being strong, tough and close grained. Throughout California on mountain ridges, slopes and canons.
1631. Huckleberry Oak;	Quercus chrysolepis var. vaccinifolia	Sierra Nevada. Low evergreen shrub.

1632. Coast Live Oak;	Quercus agrifolia	Coast Ranges, rich valley floors, Sonoma, Napa to Alameda and Santa Clara counties to southern California. Bark of this species used to adulterate the rare, valuable tanbark.
1633. Interior Live Oak;	Quercus Wislizenii	Dry mountain slopes and fertile valley floors, Sierra Nevada foothills, Great Valley and inner Coast Range.
1634. California Black Oak;	Quercus Kelloggii	Mountain slopes and gravelly valleys. Sierra Nevada and Coast Ranges, but not near sea. Fuel.
	Quercus tomentella	Rare. Coast Ranges; in narrow canyon bottoms and on exposed slopes.
1635. Price Oak;	Quercus Prici	Rare. Dry, gravelly banks of streams. Small, pure groups.
1636. Morehus Oak;	Quercus Morehus	Rare. Foothill slopes and ridges, in dry, gravelly soils. Supposedly of hybrid origin.

TAN OAK PASANIA

1637. Tan Oak;	Pasnia densiflora	The bark is peeled in large quantities for tanning leather. Coast Ranges.

CHINQUAPIN CASTANOPSIS

1638. Giant Chinquapin	Castanopsis chrysophylla	Deep soil of mountain ridges from Mendocino county northward.
1639. Golden Chinquapin	Castanopsis chrysophylla var. minor	Shrub three to fifteen feet high. Leaves very golden below. Rocky ridges and slopes. Monterey, Santa Cruz mountains, Moraga Ridge.
1640. Bush Chinquapin	Castanopsis sempervirens	Arid mountain slopes or rocky ridges. Sierra Nevada, Coast Range. Spreading shrub, one to eight feet high, with smooth brown bark.

BIRTHWORT FAMILY ARISTOLOCHIACEAE

1641. Mild Ginger	Asarum caudatum	Deep shade of Coast Range woods, Sierra Nevada, 4000 to 7000 feet; common. It has been suggested that the fragrant creeping rootstocks might be used in the manufacture of sachet powder.
1642. Mild Ginger	Asarum Lemmonii	Rare species, found growing near logs in the Merced Grove.

1643. Dutchman's Pipe	Aristolochia Californica	Coast Range hills, Sierra Nevada foothills and Tiasack Bridge, which is the Indian name of Half Dome.

SANDALWOOD FAMILY SANTALACEAE

1644. Bastard Toad-flax	Comandra umbellata	In foothills of Sierra Nevada mountains.
1644. Bastard Toad-flax	Comandra pallida	Near Mineral King, Sierra Nevadas.

MISTLETOE FAMILY LORANTHACEAE

1645. Yellow Mistletoe	Phoradendron flavescens	Interior of California on Common Cottonwood and California Buckeye, the Cottonwoods frequently killed by the parasite.
1646. Common Mistletoe	Phoradendron villosum	Coast Range and Sierra Nevada foothills, on oaks.
1647. Mistletoe	Phoradendron bolleanum	Coast Ranges, on cypress and juniper. Rare.
1648. Mistletoe	Phoradendron juniperinum	Stems one-half to one foot long, glabrous, yellowish. Berry whitish or light red.
1649. Mistletoe	Phoradendron var. libocedri	With longer and more slender joints, on incense cedar.
1650. Pine Mistletoe	Arceuthobium occidentale	Coast Ranges and Sierra Nevada on Digger Pine and Yellow Pine, Jeffrey, Juniper and Alpine Hemlock, perhaps also on Fir. When berries are fully ripe, they are explosively dehiscent at a touch or when teased, the seed being expelled to a distance of several feet.
1651. Pine Mistletoe	Arceuthobium americanum	Known only on the Lodgepole Pine.
1652. Pine Mistletoe	Arceuthobium Douglasii	On white and red fir.

GNETACEAE

1653. Desert switch plant	Ephedra Nevadensis	Eastern California. Modoc
1654.	Ephreda trifurca	County and in Nevada.
1655.	Ephedra viridis	Southern deserts.
1656.	Ephedra Torreyana	

YEW FAMILY TAXACEAE

1657. California Nutmeg	Tumion Californicum	Central California on Coast ranges and western slopes of Sierras. Found in Marion County.
1658. Western Yew	Taxus brevifolia	Coast ranges in California. Largest in Oregon and Washington and in the Sierras. Found up to 5000 feet.

PINE FAMILY CONIFERAE

1659. White pine	Pinus monticola	British Columbia south through Washington and Oregon into California. Found south of San Jacinto Mountains. High elevations.

1660. Sugar Pine White pine	Pinus Lambertiana	Mountains of Oregon along the Sierras into lower California, at mid-elevations. A valuable timber tree.
1661. Limber pine	Pinus flexilis	California, on dry rocky slopes. Yosemite southward at high elevations.
1662. White bark pine	Pinus albicaulis	Canada, south through the Sierras of California at Timber line.
1663. Four-leaf pine	Pinus quadrifolia	Southern California, sparingly. Found on dry mesas. San Jacinto Mountains.
1664. Single-leaf pine	Pinus monophylla	Desert region of Utah, Nevada, Arizona and southeastern California. In southern Sierras.
1665. Bristle-cone pine	Pinus Balfouriana	Found in California at high elevations.
1666. Torrey pine	Pinus Torreyana	San Diego County. Santa Rosa Island near sea.
1667. Western Yellow pine	Pinus ponderosa	British Columbia south through Oregon into the Sierras of California. Southern California up to 9000 feet.
1668. Jeffrey pine Bull pine	Pinus Jeffreyi	Oregon and California to the San Bernardino Mountains. Associated with Yellow pine.
1669. Lodgepole pine Tamarac pine	Pinus contorta Murrayana	Alaska south along the coast to Mendocino County and in the mountains of Washington, Oregon and California as far south as the San Jacinto Mountains up to 10,000 feet.
1670. Gray pine Digger pine	Pinus sabiniana	Foothills of Sierras and in Coast ranges. South to the Tehachapi.
1671. Coulter pine Big-cone pine	Pinus Coulteri	Southern California in Coast ranges. Monte Diablo range, south on dry, warm slopes.
1672. Monterey pine	Pinus radiata	Central California, Coast ranges south. Confined to slopes near the sea and in fog belt.
1673. Knobcone pine	Pinus attenuata	Coast mountains southern Oregon to central California, and in the northern Sierras.
1674. Pricklecone pine Bishop pine	Pinus muricata	Coast ranges. Mendocino County southward.
1675. Sitka spruce Tideland spruce	Picea sitchensis	Oregon to California to Mendocino County along coast

1676. Weeping spruce	Picea Breweriana	California in the Siskiyous in Klamath and Shasta forests.
1677. Western hemlock	Tsuga heterophylla	On Pacific Coast in fog belt of California to Mendocino County.
1678. Mountain hemlock	Tsuga mertensiana	Alaska southward into California in the Sierras at Timber line.
1679. Douglas Fir Oregon pine Douglas pine Yellow fir	Pseudotsuga taxifolia	British Columbia southward to Central California. Middle elevations in Sierras and in Coast ranges. A large important timber tree.
1680. Big cone spruce	Pseudotsuga macrocarpa	Southern California. Santa Barbara County in mountains up to 3000. Rare.
1681. Grand fir White fir	Abies grandis	British Columbia to California in fog belt. Found as far south as Sonoma County.
1682. White fir	Abies concolor	Oregon and California. Coast ranges and south in Sierras at high elevations.
1683. Bristle cone fir	Abies venusta	A rare tree of Central California. Coast ranges south. Scattered in small patches.
1684. Red fir	Abies magnifica	California in Sierras south to the Kern. Found at higher elevations than Abies concolor.
1685. Big Tree Redwood	Sequoia gigantea Sequoia Washingtonia	Limited to the Sierras in a few localities. Twenty-five known groves. Successfully grown in Nevada County.
1686. Redwood	Sequoia sempervirens	Limited to Coast ranges in fog belt, Santa Cruz County, northward to Humboldt County.
1687. Incense Cedar	Libocedrus decurrens	Cascades of Oregon, south through the Sierras of California to the San Jacinto Mountains. A valuable tree because of resistance of the wood to decay in the ground.
1688. Western Red Cedar	Thuja plicata	Found in Northern California. Mendocino County, in fog belt.
1689. Monterey cypress	Cupressus macrocarpa	Central California to Monterey. Cultivated as windbreaks. Marin County and elsewhere.
1690. Gowen cypress	Cupressus Goveniana	Mendocino to San Diego on sandy or rocky slopes.

1691. Dwarf cypress	Cupressus pygmaea	California coast, Mendocino County. Wet soil and poor barrens.
1692. MacNab cypress	Cupressus Macnabiana	Coast range of California from the Siskiyous to Napa County and in the Sierras to Yuba County in foothills.
1693. Dwarf Juniper	Juniperus communis	In the Sierras from Mono County northward in high elevations.
1694. Western Juniper	Juniperus occidentalis	Washington, Oregon and California. In Sierras south of Mohave, up to 9000 feet, on exposed slopes on dry gravelly soils.
1695. Utah Juniper	Juniperus Utahensis	Desert ranges of the Sierra Nevada. Inyo Mountains. Desert foothills. Also in the Panamint Mountains.
1696. California Juniper	Juniperus Californica	Central California to southern borders. In the Coast ranges. Tehachapi Mountains, and in the Sierra Nevada in Fresno County.

FROGS-BIT FAMILY HYDROCHARIDACEAE

1697. Water-weed	Elodea Canadensis	Low streams and ponds. Extreme northern Coast counties.
1698. Eel-grass	Vallisneria spiralis	Slow streams; a favorite food of the canvas-back duck. Just south of northern Coast border.
1699. Frogs-Bit	Limnobium Spongia	In shallow stagnant waters. Northern Coast border.

ORCHID FAMILY ORCHIDACEAE

1700. Mountain Lady's Slipper	Cypripedium montanum	Woods; rare in our district. Near Coast in May; Sierras in August and September. Often found associated with California Pitcher plant.
1701. Mountain Lady's Slipper	Cypripedum Californicum	Blossoms have comparatively short greenish-yellow sepals and petals. The sac is from white to pale rose color.
1702. Rein-orchis Wood Rein-orchis	Habenaria elegans	Greenish flowers lily-like leaves under trees and along banks. Coast.
1703. Rein-orchis	Habenaria Michaelii	Under oaks; Livermore; San Luis Obispo.
1704. Sierra Rein-orchis Indian Moccasin	Habenaria leucostachys	In wet or boggy places of middle altitude. Sierras This is the handsomest and least rare.

1705. Orchis	Habenaria maritima	Sea cliffs of the San Francisco Peninsula. Low and stout. Spur slender.
1706. Coral-root	Corallorhiza multiflora	Shade of woods in the outer and middle coast ranges. Sierras, growing among pine debris, etc., widely distributed but not common.
1707. Coral-root	Corallorhiza Bigelovia	Woods along coast and in the Sierra Nevada. On decaying vegetation. Occasional in the Yosemite. Root like a branch of coral.
1708. Stream Orchis	Epipactis gigantea	Flowers greenish or rose-color. Moist stream bank in the Coast Ranges and Sierra Nevada. Washington to Nevada and California. Petals rose color, purple veined or greenish-brown.
1709. Ladies Tresses	Spiranthes Romanzoffiana	Wet meadows in mountains. High Sierras to Mt. Shasta and southward to Marin County and San Francisco. Especially common in upper end Yosemite Valley. Six to sixteen inches high.
1710. Ladies Tresses	Spiranthes porrifolia	Marin County, upper Sacramento Valley, east side. Callous protuberances at base of lip nipple-like and pointing downward.
1711. Twayblade	Listera convallarioides	This peculiar plant is at once known by its single pair of rounded leaves, edges of bogs and in crevices of mossy rocks in reach of spray. Mineral Spring, Yosemite.
1712. Rattle-snake Plantain	Goodyera Menziesii	Woods near coast. Sierra Nevada. Flowers white similar to Spiranthes.
1713. Calypso	Calypso borealis	Redwood forests or in bogs. Abundant at Cazadero and believed to be increasing rapidly. Flowers resemble those of Lady's Slipper.

IRIS FAMILY IRIDACEAE

1714. Iris; Flag	Iris longipetala	Pt. Isabel and about San Francisco where it is very common southward to Monterey. Petals light violet. Sepals white, veined with violet .

1715. Douglas Iris	Iris Douglasiana	Coast ranges; common Vaca Mountains, May and June. Color exceedingly variable, purple to cream. California and Oregon.
1716. Ground Iris	Iris macrosiphon	San Mateo and Marin County northward. The Hupa Indians used the leaves for making twine and rope for their nets, etc. Blue, purple. Spring, winter. Stems low and slender.
1717. Wild Flag	Iris Hartwegii	Found in coniferous forest of middle altitude. Common from Crockers to the Mariposa Grove. Variation of petal coloring, yellow and lavendar.
1718. Western Blue Flag	Iris Missouriensis	Large flowered, moist places. Common east of the Sierra Nevada. A white-flowered form is reported from Mono.
1719. Blue-eyed Grass Nigger-Babies	Sisyrinchium bellum	Well known in California, where it is common on grassy hillsides and meadows. It is called Azula and Villeda by Spanish-Californians. Grass-like leaves.
1720. Golden-eyed Grass	Sisyrinchium Californicum	Much like Blue-eyed Grass, but flowers bright yellow. Stems a foot tall, winged, not branching. Wet places near coast. San Diego northward.
1721. Golden-eyed Grass	Sisyrinchium Arizonicum	Yellow flowered and branching stems. Arizona.
1722. Golden-eyed Grass	Sisyrinchium Elmeri	Yellow flowers with purple lines. Wet places in the Sierras. Lake Eleanor, etc.

AMARYILLIS FAMILY AMARYLLIDACEAE

1723. American aloe	Agave deserti	Base of Coast ranges, San Diego County and adjoining the desert.
1724. Mescal	Agave Utahensis	Mountains east of Resting Springs Valley. Southern California. Also near Mountain Springs, Nevada.
1724a	Agave Shawii	Southwest corner of California on dry hills overlooking the Pacific.

LILY FAMILY LILIACEAE

1725. Dwarf Fritillary — Fritillaria pudica
Rare. Found near Sierraville; 1-6 flowered. Flowers yellow, sessile.

1725a Pink Fritillary — Fritallaria pluriflora
Foothills in adobe soil. Solano and Yolo Counties, Upper Sacramento Valley. Six to ten inches high.

1726. Scarlet Fritillary — Fritillaria coccinea
Mt. Hood and Napa Ranges and north to Edin Valley. Stems slender, ten to eighteen inches high.

1727. Checker lily — Fritillaria lanceolata
Rice-root lily
Near sea in shady woods, San Mateo to Pt. Reyes and northward. The bulbs live just one year. Dark purple mottled with greenish yellow.

1728. Mission Bells — Fritillaria lanceolata var. Floribunda
Three to many flowered. Dark purple or greenish conspicuously spotted or checkered.

1729. Mission Bells — Fritillaria lanceolata var. gracilis
Corte Madera and northward to Napa Valley. Very small flower, narrower.

1730. Black Lily — Fritillaria biflora
Chocolate Lily
San Luis Obispo and southward. Stout 1-2 to 1 1-2 ft. high. Greenish or mostly dark purple or purple lined.

1731. Stink Bells — Fritillaria agrestis
Antioch in grain fields. Odor very obnoxious. Possibly introduced in grain seed. Stems 1 to 1 1-2 ft. high.

1732. White Fritillary — Fritillaria liliacea
Open rocky hilltops. San Francisco, Vallejo, Olema. Stems 3-8 in. high; to 5 flowered. Flowers dull white.

1733. Small Flowered Fritillary — Fritillaria parviflora
Occasional in pine woods below 6,000 ft. altitude in the Sierra Nevada. Flowers purplish brown with yellow markings. Plant 1 1-2 to 3 ft. high. Very smooth.

1734. Fawn Lily — Erythronium Californicum
"Easter Lily"
Abundant in Napa Valley and northward. March. Flowers nodding, creamy white; base of segments orange.

Erythronium Hartwegii
Sierra Nevada foothills. Flowers white or cream with orange or yellow base.

1735. Dog-Tooth Violet — Erythronium purpurascens
Glacier Lily
Sierra Nevada, Placer to Plumas Counties, above 4,000 feet. Leaves not mottled. Flowers very small, light yellow. 1-8, crowded.

Erythronium revolutum
Leaves lightly mottled. Flowers white or light pink. Mendocino and Humboldt Counties. 10-15 miles from coast in a strip four miles wide and northward.

1736. Desert Lily Hesperocallis undulata
Arid desert around Yuma and Ft. Mohave. Probably found within our limits. Flowers clear yellow shading to white at base; purplish red anthers.

1737. White Mariposa Lily Calochortus venustus
Light sandy soil or in alkaline fields. Coast range; Great Valley; Sierra Nevada; white to lilac with eye spot in middle.

1738. Mariposa Lily Calochortus splendens
A slender plant, 1-1½ ft. high. Flowers clear lilac.

1739. Yellow Mariposa Lily Calochortus luteus
A low plant, 7-10 inches high. Petals fan-shaped and clawed; yellow or orange. Coast Ranges; foothills.

1740. Calochortus uniflorus
Calistoga to Monterey. In wet lands, April to May. Stems low, flexuous. Petals lilac.

1741. Calochortus umbellatus
Low wooded hills, Marin County, Oakland hills. Walnut Creek. April. Flowers 2-6.

1742. Pussy's Ears Calochortus maweanus
Sierra Nevada and Coast Ranges. Umbel of 2-4 flowers. Mostly one radical leaf. Petals white or purplish blue.

1743. White Globe Tulip Calochortus albus
Coast Ranges; woods to southern California. Petals white, purplish at base.

1744. Calochortus pulchellus
Mt. Diablo. Collected early days, little known since. Plant about one foot high. Much branched, each branch ending in an umbel of 2-3 flowers.

1745. Golden Lily Bell Calochortus amabilis
Cat's Ears
Fairy Lanterns
North Coast Ranges. Vaca Mountains. Flowers nodding, golden yellow.

1746. Star Tulip Calochortus nudus
Sierra Nevada; meadows. Stems 10 inches or less high ending in cluster of flowers. Petals fan-shaped, white or pale lilac.

1747. Yellow Star Tulip Calochortus Benthamii
Found near Groveland. Clear yellow flowers ½ inch long, petals covered with yellow hairs.

1748. "Sego" Calochortus Nuttallii
Sierra Nevada meadows. Anthers deeply notched at base Petals white, tinged with greenish yellow or lilac.

1749. Adontostomum Hartwegii
Dry hard soil in foothills Napa Range; Sierra Nevada foothills. May. Leaves mostly radical. Grass-like. White tubular flowers, 5-6 inches long.

1750. Leucocrinum montanum
Southern California. Flowers pure white, very fragrant; early spring.

1751. Brodiaea Brodiaea terrestris
Leaves few, grass-like. 2-10 or 20 flowered. Near coast. Common in sandy soil about San Francisco. June-July. Stem very short.

1751a. Brodiaea minor
Dry plains and low hills of San Joaquin and Sacramento Valley, to southern California. Stems 3 to 6 inches high; umbel of 2-5 blue flowers.

1752. Harvest Brodiaea Brodiaea grandiflora
Very common throughout State and Sierra Nevada foothills. Scape stout, 7-18 inches high.

1753. Fire-cracker Plant Brodiaea ida-maia
"Brevoortia"
A showy and curious species, mountain slopes and wooded foothills from Marin County to Mendocino and Shasta Counties. Scape 1-3 feet high; umbel 6-13 flowered; perianth tube scarlet.

1754. Twining Brodiaea Brodiaea Californica
Hill country and Coast Ranges and foothills of Sierra Nevada. Pinkish or rose color; stems weak, climbing or twining around other plants. Often 1-8 feet high.

1755. Ookow Brodiaea congesta
Open hills in Coast Ranges from Oakland hills northward. Flowers blue or purple. April and May.

1756. Blue Dicks Brodiaea capitata
Very common in Bay region to southern California and Sierra Nevada foothills into sugar pine belt. February-May. Flowers blue; scape erect, 7-14 inches high ending in head-like umbel of 7-8 flowers.

1757. Golden Brodiaea Brodiaea ixiodies
Foothills of Coast Ranges and Sierra Nevada to 9,500 feet altitude. Varies in height from a few inches to over a foot. Umbel of loose showy yellow flowers with brown veins.

1758. Grass Nut Brodiaea laxa
A showy and beautiful species common in adobe fields. May. Corm edible. Violet-purple rarely white, 10-25 flowered.

1758a. Brodiaea peduncularis
Low wet ground, Tiburon and north to Lake County. Rose purple or nearly white, 3-15 flowered.

1759. White Brodiaea Brodiaea Hyacinthina
Common in low moist ground in Coast Ranges and Great Valley and Sierra Nevada. White or bluish white with green veins.

1760. Cluster Lily Brodiaea multiflora
Hog Onion
Sierra Nevada mountains. Habit and blue flowers of Brodiaea capitata, but much less plentiful.

1760a. Brodiaea gracilis
Sierra Nevada; common in moist places at high altitudes. Yosemite.

1761. Golden Bloomeria Bloomeria aurea
Golden Stars
Pacheco Pass, Bew Idria, Monterey County, and southward. Leaves linear with a ridge, umbel with many flowers. Yellow.

1762. Muilla Muilla maritima
Low alkaline fields; Sacramento Valley to Monterey. Stem 3-9 inches high, equaled by the narrow leaves. This little plant is much like Brodiaea and much like Allium, but with no onion taste or smell.

1763. Wild Onion — Allium Bolanderi
Humboldt County. Flowers rose color or pinkish. Herbage with characteristic taste and odor of onion.

1764. Wild Onion — Allium unifolium
Monterey Co.; Mt. Diablo. Napa Mts., Ukiah. The bulb was used as a food by Pomo Indians.

1765. Wild Onion — Allium falcifolium
Napa Mts. and northward to Lake Co. Flowers rose color.

1766. Wild Onion — Allium Breweri
Mt. Hamilton; Mt. Diablo. Pope Valley. Bulbs large. Flowers deep rose color.

1767. Wild Onion — Allium lacunosum
Santa Clara County. Mt. Hamilton. 3-6 inches high. Flowers small, 10-20 in an umbel.

1768. Wild Onion — Allium serratum
Low hills, probably not found east of the Sacramento Valley.

1769. Wild Onion — Allium attenuifolium
North coast ranges and Sierra Nevada. Bulb coats reddish. Flowers white.

1770. Wild Onion — Allium monospermum
Vaca Mts. Scapes in clusters of 2-4.

1771. Wild Onion — Allium Sanbornii
Reported from the Yosemite. Flowers light rose color.

1772. Wild Onion — Allium campanulatum
Sierra Nevada. In open coniferous forests.

1773. Wild Onion. — Allium tribracteatum
Sierra Nevada. Tuolumne meadows and above. Leaves usually twice as long as stem which is only ½ inch long. Flowers pale pink. Near Mineral King.

1774. Wild Onion — Allium parvum
Rare; Sierra Nevada near timber line on Mt. Lyell. Flowers pink in compact head.

1775. Wild Onion — Allium bisceptrum
Mono County near Mammoth. On stream banks in the mountains up to 7,500 feet altitude.

1776. Swamp Onion — Allium validum
Mono Pass near Mineral King. In high swamps, 7,000 to 9,000 feet altitude. The stout, persistent rootstocks often attain a diameter of 7 m.m.

1777. Swamp Onion — Allium crocea
Found on summit of the mountains east of San Diego.

1778. Kur-gur — Allium acuminatum
Eastern Sierra Nevada. May and June. Sepals bright rose color.

1779. Bronze Bells — Fritillaria atropurpurea
Found in the Sierra Nevada at higher elevations as at north base of Mt. Lyell.

1780. Tiger Lily — Lilium pardalinum
Leopard Lily
Widely distributed in California, but in the Sierra Nevada is restricted to canyons mostly below 3,500 feet. Stream banks and wet meadows.

1781. Lilium parvum
Sierra Nevada. Orange-yellow spotted with purple, flowers 2-28 or more on a stalk. It grows in nearly all springy places up to 7,000 feet.

1782. Lemon Lily Lilium Parryi
Rootstock not branched. Flowers clear lemon-yellow. Southern California mountains.

1783. Coast Lily Lilium maritimum
Leaves alternate; rarely whorled. Flowers 1-5 dark red. Low, coast meadows Marin County, northward.

1784. Chaparral Lily Lilium rubescens
Chamise Lily
Redwood Lily
Stems 2-5 feet high. Flowers nearly white, dotted with brown, aging to rose-purple. Chaparral slopes in mountains Marin County to Howe Mt., northward

1785. Lilium Humboldtii
Stems 3-5 feet high very stout. Flowers large, orange-red, spotted with maroon. Open woods, lower yellow pine belt of Sierra Nevada.

1786. Washington Lily Lilium Washingtonianum
Shasta Lily
Stems 4-6 feet tall. Flowers pure white, among the chaparral, Sierra Nevada. Upper pine forests or thickets.

1787. Lilium Columbianum
In Sierra Nevada and of northerly distribution. Flowers bright reddish orange. Stems slender, 2-4 feet or more high.

1788. Camass Camassia esculenta
Quamash
Wet meadows Santa Rosa Valley northward to Washington. Flowers dark blue or nearly white.

1789. Camassia leichtlinii
In Sierra Nevada. Ukiah and northward to Washington. Flowers blue to white. Bulbs formerly much eaten by the Indians who boiled them or roasted them in pits.

1790. Soap plant "Amole" Chlorogalum posneridianum
Throughout California. Plant 2-5 feet high. Flowers white, purple veined. Opens in the afternoon only. Bulbs employed by the Indians for washing and as food. They cook them in pits with California grape leaves.

1791. Chlorogalum angustifolium
Lower San Joaquin and northward. Flowers white with yellowish green lines.

1792. Star Zygadenus Zygandenus Fremontii
Black Grass Nut
Common and variable. Coast Range hillsides among bushes.

1793. Death Camass Zygadenus venenosus
Hog's Potato
Lobelia (Nevada)
Mystery Grass
Grows in meadows near the coast from Monterey northward. Also found in the Sierra Nevada. It is a dangerous enemy of the stock man. It poisons sheep that eat the plant. When young its leaves are hard to distinguish from the grass among which it grows. Both leaves and bulbs are poisonous. Hogs eat the bulbs and are immune

1794. False Hellebore — Veratrum californicum
High north Coast Ranges. A characteristic plant of the Sierra Nevada. Flowers greenish or cream color.

1795. — Veratrum fimbriatum
Mendocino "White Plains" and northward. Similar in habit to the preceding; leaves long and narrow.

1796. Squaw-grass, Bear-grass — Xerophyllum tenax
Mt. Tamalpais. Monterey and northward to Del Monte County. Northern Sierra Nevada.
This plant is from 2 to 6 feet high with stout leafy stem springing from a tuft of wiry, grass-like leaves which spread out like a fountain.
The fibers of the leaves were employed by the Hupas for making garments and for decorative work in baskets. The bulbs furnished a nourishing food often being roasted in a pit for two days. Said to bloom only once in five to seven years. This grass on Mt. Tamalpais was last in bloom in 1914.

1797. Bog Asphodel — Narthecium Californicum
Mendocino county and northward, northern Sierra Nevadas. Leaves iris-like; flowers yellowish-green.

1798. Wake Robin; Common Trillium Birthroot — Trillium sessile
Coast Range woods, but not in inner Coast Range. Deep red or lilac, or varying to white. In varieties petals white, yellowish or greenish. Sierra Nevada, San Luis Obispo.

1799. Coast Wake Robin; Common Trillium-Birthroot — Trillium ovatum
Woods near the coast, Santa Cruz northward. Petals white, changing to deep rose color. March, April.

1800. Fetid Adder's Tongue — Scoliopus Bigelovii
Shade of the redwood forest, Marin to Humboldt. January, March. The flowers are suggestive of orchids in appearance, but have a very offensive odor.

1801. Red Clintonia — Clintonia Andrewsiana
Shady woods near coast. Leaves large, of a rich, polished green. Flowers. a cluster of deep rose-colored nodding bells.

1802. Green-cup; White Clintonia — Clintonia uniflora
Sierra Nevada, Merced and Tuolumne groves and near Chinquapin. Flowers white, erect.

1803. Wild Lily-of-the Valley — Mianthemum bifolium
Sausalito hills in rocks; Eureka northward. Flowers white. Fruit a red berry. The leaves furnish a lotion for inflammation and burns highly esteemed in rural medicine.

1804. Star-flowered Solomon's Seal — Smilacina sessilifolia
Shady woods of the Coast Range. Small, cream-white flowers. Grows in a loose cluster on a very slender angled flower stalk. Berries reddish, purple or black.

1805. False Solomon's Seal — Smilacina amplexicaulis
Shady woods, range of preceding; also in Sierra Nevada, April. Feathery appearing flower clusters. Flowers very small, cream-white.

1806. Smilacina stellata
On banks of the Truckee River.

1807. Drops of Gold; Fairy Bells — Disporum hookeri
Shady woods of Coast Range. Flowers greenish white, berry scarlet.

1808. Fairy Lanterns — Disporum menziesii
Stream banks, Coast Range north to British Columbia. Flowers whitish, fruit yellow.

1809. Fairy Bells — Disporum trachyandrum
Rare. Western slope of Sierra Nevada. Flowers tucked away on short, pendant stalks beneath broad, thin leaves.

1810. Asparagus — Asparagus officinalis
Garden plant escaped to low lands about Alameda. Flowers small, green, pendulous.

PICKEREL-WEED FAMILY PONTEDARIACEAE

1811. Water Star Grass — Heteranthera graminifolia (Schollera graminifolia)
Said to have been found in Mendocino County.

1812. Water Hyacinth — Eichornia crassipes
Being introduced and spreading in streams in Fresno County.

ARUM FAMILY ARACEAE

1813. Lysichton kamtchatcensis
Swamps near coast, Fort Bragg and northward to Alaska.

CAT-TAIL FAMILY TYPHACEAE

1814. Cat-tail — Typha latifolia
Common in marshy places by creeks, Coast Range, lower Sacramento and lower San Joaquin.

DUCKWEED FAMILY LEMNACEAE

1815. Gibbon's Duckweed — Lemna gibba
Abundant in ponds.

1816. Smaller Duckweed — Lemna minor
Variable. Covering the surface of stagnant ponds.

1817. Ivy-leaved Duckweed — Lemna trisulca
Cold springs and running water.

1818. Lemna minima

1819. Lemna valdiviana
Near Lone Pine on the south fork of Kern River.

1820. Wolffia lingulata
In irrigation canals, Kern County.

POND WEED FAMILY NAIDACEAE

1821. Pondweed — Potamogeton americanus
Ponds or slow creeks in valleys, at low elevation.

1822. Pondweed — Potamogeton lucens
San Francisco southward, and eastward in small lakes and ponds.

1823. Leafy pondweed Potamogeton foliosus
San Francisco southward. Shasta County into Oregon.

1824. Slender pondweed Potamogeton pusillus
San Francisco peninsula, Santa Cruz and in the Sierras.

1825. Fennel pondweed Potamogeton pectinatus
Most common species in California. Found up to 7000 feet.

1826. Pondweed Potamogeton latifolius
Brackish waters. Gilroy. Found in Lassen County northward into Oregon.

1827. Ditch Grass Ruppia maritima
Alkaline or brackish waters. Southern California and northward.

1828. Holly leafed Naid Naias marina
Central California, southward.

1829. Slender leafed Naid Naias flexilis
Washington, Oregon to southern California.

1830. Naias guadalupensis
Oregon south through the Coast Range to San Francisco.

1831. Horned pondweed Zannichellia palustris
Pools and still waters Southern California to Sacramento Valley.

1832. Eel grass Zostera marina
San Pedro northward in shoal waters.

1833. Torrey's eel grass Phyllospadix torreyi
Along the shore to low tide limits. San Diego, northward.

1834. Pacific eel grass Phyllospadix scouleri
Santa Barbara and northward.

ARROW GRASS FAMILY JUNCAGINACEAE

1835. Common arrow grass Triglochin maritima
Marshy shores along the coast.

1836. Slender arrow grass Triglochin concinna
Marshy shores along the coast.

WATER PLANTAIN FAMILY ALISMACEAE

1837. Water Plantain Alisma plantago
Common; margin of ponds. San Francisco and south along peninsula. Sacramento Valley.

1838. Tule potato Sagittaria latifolia
Along the Sacramento River, on wet locations; islands, etc.

1839. Stockton arrow-head Sagittaria Greggii
Along the San Joaquin. Scarce.

1840. Sanford arrow-head Sagittaria Sanfordii and vars.
Lower San Joaquin, on wet locations.

RUSH FAMILY JUNCACEAE

1841. Rush Juncus spp.
Plants, grass-like, growing in swamps and wet places. Stems hollow or spongy; leaves alternate, smooth. Nine species in coast ranges and interior valleys. Sierras.

1842. Wood rush Luzula comosa
Shaded spots—an early spring plant.

1843. Small flowered wood rush Juncoides pariflorum
In mountains of California. Found in meadows.

1844. Spike wood-rush Juncoides spicatum
Widely distributed. Pacific coast states and in mountains of California. Found at high elevation in the Sierras.

PALM FAMILY PALMACEAE

1845. Washington Palm Neowashingtonia filifera
Colorado Desert. In southern California. Confined to southwestern California.

SEDGE FAMILY CYPERACEAE

A family much resembling the grasses and by many mistaken for them. They are generally distinguished from grasses by the following:

(a) The leaves are arranged in three rows up and down the stem, while grasses have only two rows.

(b) The sedges have closed sheaths.

(c) The stems are solid and mostly triangular in cross-section.

(d) The fruit of the sedges is an achene while in grasses it is a grain or caryopsis.

(e) Some members of the sedge family, like the spike rushes, *Eleocharis,* have the leaves reduced to a sheath at the base of the stem.

The large majority of the members of the sedge family grow in water or mud by ponds, streams, lakes, or borders of snow banks in the high Sierras. A few are dry land plants.

In some parts of California in the region of lakes like Honey Lake, Goose Lake, etc., when the water recedes during the summer large quantities of sedge hay is cut and stacked. There is generally a mixture of water loving grasses with them. They make very fair stock hay.

1846. Galingales Cyperus
They have triangular stems surmounted at the top by a cluster of greenish or brownish flowers. The weedy nut-grasses, *Cyperus esculentus* and *C. rotundus* are troublesome pests in the field. The former is the Chufa. The tubers or "nuts" which form beneath the ground are prized in the south for hog feed. *C. erythrorhizos* and *C. melanostachys, C. acuminatus,* and *C. lateriflorus* are more or less troublesome in the rice fields.

1847. Spike-rushes Eleocharis
Slender reed-like plants without leaves growing very close together in shallow water. They can be recognized by the small brown tapering head which terminates each stem. They make a soft, but rather poor quality of hay.

1848. Bull-rushes Scirpus
Tall bluish-green stems about the size of a lead pencil, everywhere occupying immense areas in our marshes, particularly on the overflowed lands of the Sacramento and San Joaquin rivers. Of little value for forage, commonly called tule.

1849. Sedges Carex
Probably the genus *Carex* contains the largest number of species of any plants known. There are about 1000 in the world, and 400 in North America. California has a good proportion of these and we find them in moist places where little drainage occurs during the year. The bogs of the high mountains nearly always contain sedges and they are frequently found on peat lands in great abundance.

None are in cultivation, but native hay frequently contains a considerable portion of several different species of sedge. They are good feed, but not equal to the best grasses although superior to many of the poor grasses.

1850. Cotton sedge	Eriophorium gracile	Swamps, Sonoma County, Sierra County
1851.	Hemicarpha subsquarrosa	Sacramento Valley
1852.	Hemicarpha occidentalis	Yosemite Valley and elsewhere in the Sierras
1853.	Fimbristylis thermalis	San Bernardino, Owen's Valley
1854.	Fimbristylis miliacea	Reported as from San Francisco.
1855.	Fimbristylis apus	Clear Lake.
1856. Saw-grass	Cladium Marciscus (var. Californicum)	Swamp—San Gabriel, Los Angeles.

GRASS FAMILY GRAMINEAE

Prepared by class in Agrostology, College of Agriculture, University of California.

The Gramineae are a very large family, consisting of about 500 genera and 4,000 species distributed throughout the world. Of these, about 85 genera and 325 species are found in California. There is probably no other family of plants which has such a great number of individual plants, or which occupies so much land as the grasses. In California they are found growing under a wide range of conditions, from the low, moist places along the bays and rivers, to the desert regions in the central valleys, or the high tops of the Sierras.

The grasses are more widely used by mankind to supply his needs and comforts than any other family of plants. All the cultivated cereals and most of our cultivated forage plants are from this family. There are also immense areas of range lands in California and other western states covered with wild grasses which are valuable for pasture. In many places in the state these pastures are becoming depleted through too close grazing, the valuable native grasses being killed off and their place taken by weeds or less valuable grasses. The problem of increasing the number of these wild native grasses has become one of pressing importance.

Grasses are often of indirect value in agriculture as soil and sand binders. Certain species are especially well adapted to growing in the sand dunes of the California coast, and thus covering them with a vegetation which prevents their shifting. The sand dunes just outside the city of San Francisco were planted with one of these beach grasses, *Ammophila arenaria,* and in this way converted into the Golden Gate Park. Some grasses are also especially adapted to holding the soil on steep hillsides and banks, due to their habit of spreading by means of rootstocks, thus forming a thick mat.

There are very few troublesome weedy grasses in California. Even the so-called weedy grasses usually have some value for forage. Their chief injury to agriculture is in occupying land which should be occupied by more valuable grasses. A few are troublesome in irrigation ditches.

The members of the grass family are comparatively easy to identify. The California species are all herbaceous plants, usually with hollow stems (culms), closed at the nodes, and two-ranked leaves. Leaves consist of two parts, the sheath and the blade, the sheath enveloping the culm with the margins usually overlapping, the blade with parallel veins, usually narrowly linear; the inflorescence or flower stalk, a panicle, or contracted into racemes or spikes; the flowers usually are perfect, small without a distinct perianth, but subtended by small green bracts called glumes; glumes usually three, with delicate filaments, pistil one, usually with two styles and plumose stigmas.

I. ANDROPOGONEAE

1857. Western Blady-grass Imperata Hookeri

A short-lived perennial with dense, spike-like panicles covered with silky hairs. Desert regions of southern California.

1858. Bluestem Grass Andropogon barbinodis
Two to four feet high, tufted culms. Panicles 2 to 3 inches long, consisting of several silky white racemes. Santa Barbara to San Diego. Dry hills.

1859. Johnson Grass Holcus halepensis
An erect, glabrous, robust plant with extensively creeping rhizomes. 2 to 4 feet high with more or less spreading panicles 6 to 10 inches long. A valuable hay grass in the southern states. A weed in southern California.

II. ZOYSIEAE

1860. Wooly Galleta Pleuraphis rigida
Felty-pubescent, numerous culms; 1½ to 3 feet high, usually woolly around the top of the sheath. Mohave and Colorado deserts, east to Arizona and south to Mexico.

1861. Galleta Pleuraphis Jamesii
Resembles some of the dwarf bamboos in habit, growing 2 feet high in great clumps; stems coarse, woody and much branched; stems and leaf sheaths are clothed in dense white-matted pubescence which gives a striking appearance to the grass. Driest regions of southern California and Arizona.

III. PANICEAE

1862. Crab Grass Digitaria sanguinalis
An annual, usually much branched at the base. Culms 1 to 3 feet long, spreading at the base or creeping and rooting at the nodes. Inflorescence subdigitate, three to twelve racemes. A common weed in hoed crops. Excellent pasturage. Common in southern and central California.

1863. Knot Grass Paspalum distichum
Resembles Bermuda grass. Culms erect from a decumbent rooting base with numerous creeping rhizomes 1 to 2 feet high. Two racemes in inflorescence, one 1-3 to 1-2 inch below the other and sometimes a third below the second. Along the seacoast and in ditches in central and southern portion of the state.

1864. Panicum Arizonicum
Jamacha, San Diego County. (The only California specimen.)

1865. Panicum dichotomiflorum
Fresno. (The only specimen seen in California.)

1866. Old Witch Grass Panicum capillare
Amador County.

1867. Barb-cushioned Old Witch grass Panicum barbipulvinatum
Closely resembles *Panicum capillare;* annual, blades 4 to 10 inches, foliage papillose-hispid, long panicles large and diffuse, finally breaking away and rallying before the wind. Open ground and cultivated soil at moderate altitudes, British Columbia to Texas.

1868. Rough Stalked Panic Grass Panicum hirticaule
Sierra Nevada and San Diego.

1869. Hog Millet (Broomcorn Millet) Panicum miliaceum
Sacramento Valley and southern California, scattered or escaped from cultivation.

1870. Panicum Urvilleanum
Plants robust, 2 to 3 feet high, perennial, from creeping rhizomes, culms solitary or few in tuft, pods densely bearded but usually hidden by the darkly villous sheath. Sandy deserts, southern California and Arizona. Binds drifting sands.

1871. Panicum Lindheimeri
Rare in California, Sacramento, Three Rivers.

1872. Panicum huachucae
Rare in California, San Bernardino Mountains.

1873. Panicum occidentale
Vernal forms yellowish-green, culms slender 6 to 12 inches high, sparsely pubescent leaves tending to cluster at the base. Autumnal form branching from lower nodes forming a spreading tussock. Peat bogs and moist sandy soil. San Diego County to British Columbia.

1874. Pacific Panic Grass Panicum Pacificum
Vernal form light green, papillose-pilose, 1 to 2 feet high. Autumnal form prostrate, spreading, repeatedly branching from the upper and middle nodes. Sandy shores and slopes and moist crevices in rocks. San Bernardino Mountains to British Columbia. Most common species of genus in California.

1875. Panicum thermale
Vernal form grayish-green, densely tufted, velvety-villous, 4 to 12 inches high, nodes bearded. Autumnal form widely spreading, repeatedly branching, forming a dense cushion. Wet saline soil around hot springs. Sonoma County, Lassen Peak.

1876. Panicum Shastense
Vernal form 1 to 1½ feet high, papillose-pilose, Autumnal form spreading, rather sparingly branched from middle nodes. Meadows, Castle Crag (only known locality).

1877. Scribner's Panic Grass Panicum Scribnerianum
Vernal form erect, 1 to 2 feet high. Autumnal form branching from middle and upper nodes. Castle Crag; rare in California.

1878. Barn-yard Grass Echinochloa crus-galli
Culms erect, spreading or prostrate, 1 to 2 feet high; panicles 5 to 10, inches long, consisting of several erect, spreading or drooping racemes; spikelets green or purple. Fields and cultivated soil, along irrigating ditches.

1879. Shama Barn-yard Grass Echinochloa colona
Culms stout, rather succulent, 2 to 3 feet high, panicle dense, 4 to 10 dense racemes ½ to 1 inch long. Reported from southern California.

1880. Foxtail Millet, Yellow Foxtail Setaria glauca
A weed, annual, culms branching at the base, glades flat with spiral twist, panicle dense, oblong, 1 to 3 inches long. Rare in California.

1881. Green Foxtail Setaria viridis
Annual, culms erect, 3 to 4 feet high, blades flat, not twisted, panicle oblong, ovate. Rare in southern California; found in waste places and cultivated fields in the northern and eastern states.

1882. Setaria gracilis
Perennial; culms erect, 3 to 4 feet high, blades elongated, narrow; panicle slender. Fresno and Riverside.

IV. ORYZEAE

1882a. Rice — Oryza sativa
The cultivated rice now extensively grown in the Sacramento Valley.

1882b. Cut grass — Homolocenchrus oryzoides
A tall grass with rough-margined leaves. Along creeks, Sacramento Valley. Rare.

V. PHALARIDEAE

1883. Gnawed Canary Grass — Phalaris paradoxa
Annual, 1 to 2 feet high; panicle dense, oblong, narrowed at base, 1 to 2 inches long; fertile lemma smooth and shining. Occasionally found in grain fields; introduced.

1884. California Canary Grass — Phalaris Californica
Perennial, culms erect or bending abruptly; panicle ovoid or oblong, 1 to 2 inches long, often purplish tinged. Found in ravines and open ground, Coast ranges.

1885. Reed Canary Grass — Phalaris arundinacea
Perennial, with creeping rhizomes; culms erect, 2 to 3 feet high; panicle 3 to 7 inches long; found in swamps and moist places occasionally in northern and central California. A form with variegated leaves is cultivated under the name of Ribbon Grass.

1886. Small Canary Grass — Phalaris minor
Annual; culms erect, 1 to 3 feet high; panicle 1-2 to 2 inches long, glumes broadly winged on the keel. Found near the coast from Norman and Vacaville to San Bernardino and San Diego. Introduced from the Mediterranean region.

1887. — Phalaris brachystachys
Annual; culms 1 to 2 feet high; panicle ovate, about an inch long, glumes strongly winged on the keel. Introduced, only one specimen found in California, in Butte County.

1888. Canary Grass — Phalaris canariensis
Annaul; culms erect, 1 to 3 feet high; panicle 1-2 to 1-2 inches long; glumes broadly winged. Introduced; rare in California.

1889. Lemmon's Canary Grass — Phalaris Lemmoni
Annual; culms erect, 1 to 3 feet high; panicle dense, 2 to 4 inches long; glumes not winged. Central and southern California, mostly near coast.

1890. Southern Canary Grass, or Apache Timothy — Phalaris Caroliniana
Annual: culms erect, 1 to 2 feet high; panicle oblong, 1 to 2 inches long; glumes narrowly winged. Apparently introduced in California; rare; found at Comptehe, Ojai Valley, San Clemente, Santa Catalina, and San Nicholas islands.

1891. California Timothy — Phalaris angusta
Annual; 3 to 5 feet high; panicle dense, 2 to 5 inches long. Found from California to Louisiana.

ANTHOXANTHUM

Spikelets with one perfect flower, glumes unequal; aromatic grasses with narrow spike-like panicles.

1892. Sweet Vernal Grass Anthoxanthum odoratum
Perennial; culms slender, erect, 8 inches to 2 feet high; panicle 1½ to 3 inches long, pointed. Occasionally cultivated, escaped in the cooler and more moist regions, as at Crescent City, Humboldt Bay.

HIEROCHLOE

1893. Large-Leafed Vanilla-Grass Hierochloe macrophylla
Culms few, erect, 2 to 3 feet high; blades crowded together toward the base; panicle somewhat open, 3 to 5 inches long. Found in the Redwood belt from Monterey northward into Oregon.

VI. AGROSTIDEAE

ARISTDA

Spikelets one-flowered, in narrow or open panicles. Lemma with a hard, abconical pubescent callus, terminating in a usually trifid awn. Tufted annuals or perennials with narrow blades.

1894. Brome Three-Awned Grass Aristida bromoides
Annual; culms much branched at the base, 4 to 12 inches long, erect or often spreading or prostrate; panicle narrow, rather dense, 2 to 3 inches long. Found on open ground in southern California.

1895. Prairie Triple-Awned Grass Aristida oligantha
Annual; culms erect, branched at base and all the nodes, 1 to 2 feet high, often woolly at the very base; panicles narrow, loosely few-flowered. Probably introduced into California.

1896. Palmer's Three-Awned Grass Aristida Palmeri
Perennial; culms growing in tufts, erect, 1 to 2 feet high. Found in San Diego County.

1897. Texas Poverty Grass Aristida divaricata
Perennial; culms growing in tufts, erect, 1 to 2 feet high. Southern California.

Aristida Parishii
Perennial; culms tufted, 1 to 2 feet high. Rarely found in southern California.

1898. Hare's Grass Aristida Californica
Perennial; culms growing in tufts, much branched at the base, 6 inches to 1 foot high; panicles numerous, loose, 1 to 2 inches long, the few branches few-flowered. The deserts of southern California.

1899. Purple Top Bunch Grass Aristida purpurea
Perennial; culms erect, about 2 feet high; panicles 4 to 6 inches long, rather loose. Plains and deserts of southern California.

1900. Reverchon's Three-Awned Grass Aristida Reverchoni
Perennial; culms in dense tufts, erect, 1 to 2 feet high; panicle narrow, 4 to 6 inches long. Deserts and plains of southern California.

1901. Small Purple Top Bunch Grass Aristida Fendleriana
Perennial; culms in dense tufts, usually less than one foot high. Deserts and plains of southern California.

1902. Needle-and-Thread Stipa comata
Long-Awned Porcupine Grass
A mountain grass widely distributed from Alaska south through the Sierras to southern California. Dry sandy soils. It is injurious to sheep because of long, stiff awns, but is of value for forage when young.

1903. California Porcupine Grass Stipa coronata
From Monterey and Tulare counties into lower California. This species is distinguished by the very long silky hairs on the floret, which gives it a silvery luster. Mostly found on sandy plains and hills in the Coast Ranges.

1904. Elmer's Porcupine Grass Stipa Elmeri
In the mountains, southern California to Washington. Found on rather dry, open situations at medium elevations in the Sierras. Awns feathery and stems pubescent.

Stipa eminens

1905. Anderson's Porcupine Grass Stipa Lepidia, var. Andersoni syn. S. eminéns var.
Found only in California; Coast Ranges, Mt. Shasta through the Sierra Nevadas to San Diego.

1906. Lemmon's Porcupine Grass Stipa Lemmoni and var.
Washington to California. Awn twice bent, with short appressed hairs to second bend. Dry, open situations in the mountains, yellow pine belt.

1907. Letterman's Porcupine grass Stipa Lettermani
Washington to California, Truckee and San Bernardino. On dry soils, up to 9000 feet. It is a good range grass and makes good forage.

1908. Sub-Alpine Porcupine Grass Stipa minor
This is one of the three commonest Stipas on the open mountain ranges, occurring on dry soils at high elevations; on lava beds in Modoc County. A good spring forage grass.

1909. Western Porcupine Grass Stipa occidentalis
Usually found on dry, well drained soils in open foothills; southern California north into Washington. Good forage in spring when tender.

1910. Stipa Parishii
A Stipa with densely long-villous lemma of southern California and Nevada.

1911. Stipa pulchra
A new species from Marysville.

1912. Southwestern Porcupine Grass Stipa setigera
Most common in the southwest from southern California to Texas; sparingly in northern California; Berkeley hills, Coast Ranges. Glumes narrow, purplish, 3-nerved. Awn 2 to 3 inches long.

1913. Plumed Porcupine Grass; Desert Feather Grass Stipa speciosa
From central California east to Colorado; Mohave, and elsewhere in arid region. A native of Chili. Also in Stanislaus County. Leaf sheaths felt-like at base; awn, once bent; feathery appearance because of long hairs.

1914. Thurber's Porcupine Grass — Stipa Thurberiana

Washington to central California, in mountains on well drained soil. Awn purplish, short, pilose to second bend. Leaf blades narrow or involute.

1915. Stipa Stillmanii

A stout grass, 2 to 3 feet high; sheaths smooth, blades few, narrow; awn 1 inch long, scarcely 2; bent, rough. Placer County, Blue Canon only.

1916. Sleepy Grass — Stipa Vaseyi

A grass supposed to have a narcotic effect on horses. It occurs in the southwest, Arizona and New Mexico, and has been found in the southeastern part of California in the mountains.

ORYZOPSIS

1917. Oryzopsis Bloomeri

A tufted perennial, 1 to 2 feet high, occurring in dry regions. Washington south through California. Modoc County, Contra Costa County.

1918. King's Mountain Rice — Oryzopsis Kingii

High Sierras, Nevada. A slender grass 5 to 15 inches high with numerous thread-like leaves. Eaten by all classes of stock—an important alpine park grass.

1919. Indian Mountain Rice; Indian Millet; Pinon Grass; Sand Grass — Oryzopsis hymenoides

Scattered, British Columbia to California, more abundant southward. It is best at 5000 feet, at higher elevations it becomes dwarfed. Occurs on dry locations and makes good feed for all classes of stock. Seeds were used by the Indians for food.

1920. Oryzopsis miliacea

A native of Europe, but found introduced in several localities in California, Mendocino County, Santa Barbara and Los Angeles.

1921. Oryzopsis Webberi

or Sierra Nevada, at high elevations, on dry gravelly slopes. Very rare; in herbarium, having been collected but few times due to grazing by sheep. A short, tufted grass with long glumes and densely pubescent lemma. Lassen County, Lake Tahoe region; Whitney region.

MUHLENBERGIA

1922. Muhlenbergia Californica

Southern California on Mt. Lowe, San Bernardino mountains, and San Diego.

1923. Wooly Muhlenbergia — Muhlenbergia comata

Rather moist ground in mountains, Shasta south to San Bernardino mountains. Very palatable to all classes of stock, but not abundant.

1924. Slender Muhlenbergia — Muhlenbergia filiformis

In moist locations at medium elevations, Siskiyou County south into mountains of northwestern Arizona.

1925. Mountain Muhlenbergia — Muhlenbergia gracilis

Along the Pacific coast into Mexico. A densely tufted perennial occurring on gravelly to rocky soil at middle altitudes, mostly in open. August, September. Good when young for forage.

1926. Jones' Muhlenbergia — Muhlenbergia Jonesii

Known only from northeastern California on dry soils; Shasta, Warner Valley; Placer County, etc.

1927. — Muhlenbergia Lemmoni

A perennial grass of the deserts of southern California.

1928. Small-seeded Muhlenbergia — Muhlenbergia microsperma

An annual; often purple-colored, having two sorts of spikelets, Cleistogamust spikelets being formed at base of the sheath, which have no glumes, and the seed is larger than that of the terminal spikelets. It occurs in open ground from middle and southern California to Arizona, limited distribution and of small importance from forage standpoint.

1929. Porter's Muhlenbergia; Mosquito Grass; Black Grama — Muhlenbergia Porteri

A much branched, tufted perennial with slender, weak culms, occurring under shrubs on dry mesas and foothills. Very good forage, but not abundant, so of minor importance because of over-grazing.

1930. Red Muhlenbergia — Muhlenbergia repens

A perennial from a woody creeping base, occurring on dry deserts or in moist places. Inyo County.

1931. Dwarf Muhlenbergia — Muhlenbergia squarrosa

A small perennial from numerous hard creeping rootstocks, occurring on dry ground in mountains of south, Lake Tahoe region to San Jacinto mountains, also northward.

CRYPSIS

1932. — Crypsis aculeata

Prostrate grass, a few inches to a foot in diameter, occurring on overflowed land or Interior Valley, Stockton and Colusa Counties.

PHLEUM

1933. Alpine Timothy — Phleum alpinum

A widely distributed grass, found in the mountains throughout the Pacific Coast, in marshes and moist meadows. Also found in the Coast Ranges as far south as Mendocino County. A good feed for all classes of stock.

1934. Timothy — Phleum pratense

Found in California as an escape from cultivation.

1935. Short-Awned Foxtail — Alopecurus aristulatus

A grass of wet places in the mountains of California, common in the cooler places of the United States. Culms dark brown at points, bent at base.

1936. California Foxtail — Alopecurus Californicus

A perennial grass, differing from preceding in the inflated sheaths with longer spikelets. Meadows and wet places.

1937. Water Foxtail — Alopecurus geniculatus

Rare in California. A rather low, sprawling grass, culms bent, often rooting at the nodes. Found in wet places, commonly banks of streams, etc. San Diego County.

SPOROBOLUS

1938. Alkali sacaton — Sporobolus airoides
A densely tufted perennial, forms large tussocks; bottom lands, often in alkaline soil, growing up to 11,000 feet elevation. Amador County to Tia Juana. Generally too coarse for forage.

1939. Rough-Leaved Dropseed — Sporobolus asperifolius
A species which differs from the others of this genera in having more than one floret, specimens having been found with 1, 2, and 3 flowered spikelets. Lassen County to Death Valley and Riverside.

1940. Tufted Annual Dropseed — Sporobolus confusus
An annual. Found on open, sandy, usually moist ground, in Sierra Nevadas, Donner Lake, Mono Lake and Yosemite.

1941. Deer Grass — Epicampes rigens
A typically southwestern grass, found as far north as Butte County, mostly southern California, on dry or open ground. Considered one of the best native dry land grasses. Arizona.

1942. Shore Polypogon — Polypogon littoralis
Introduced species from Europe, found in California in waste places. especially along irrigating ditches. Siskiyou County to San Diego County.

1943. Mountain Polypogon — Polypogon monspeliensis
Introduced from Europe, in Lower California north to British Columbia. Common in California in waste places, along ditches, etc., and in foothills.

CINNA

1944. Wood Reed-Grass — Cinna latifolia
A grass 2 to 4 feet high, with leaf blades ½ to ¾ inch wide, and panicle 6 to 12 inches long; thread-like branches drooping. Found in moist places in woods and along streams in the Sierra Nevadas. Highly palatable to stock, but seldom very abundant.

AGROSTIS

1945. Redtop — Agrostis alba and var.
This is an important hay and pasture grass. It is cultivated as a meadow grass and frequently escapes along roads and waste places. In wet meadows in the mountains.

1946. Pacific Redtop — Agrostis ampla
This species is found from Washington to California, Mendocino County and in the foothills of the Sierra Nevadas. Prefers medium moist soil of interior valleys.

1947. — Agrostis breviculmis
Mendocino County.

1948. Spiked Redtop — Agrostis exarata
A widely distributed, erect, tufted perennial, sometimes dwarfed, or as much as 4 feet high. Very common on moist sites. Coast Ranges and in mountains up to 9000 feet. June, September. It is palatable to all classes of stock, especially cattle and horses. It remains green most of the season. Should be cultivated.

1949. Leafy Redtop — Agrostis foliosa
Meadows and open woods, from Humboldt County south along the coast and in the Sierra Nevadas north to the San Jacinto mountains, along most creek bottoms.

1950. Agrostis exigua
Only collected once in California, by Bolander.

1951. Agrostis glomerata
Along the coast from Mendocino County to Monterey. Sheaths conspicuously striate, often inflated.

1952. Hall's Redtop Agrostis Halli
Oregon and California near the coast. A perennial with rootstocks, spikelets without awns. Moist woods.

1953. Winter Redtop Agrostis hiemalis
In the mountains, Sierra Nevadas, meadows and moist places. June to August. Not considered to be very good forage because of small amount of leafage.

1954. Idaho Redtop Agrostis Idahoenis
In the mountains and meadows of Sierra Nevadas, San Bernardino and San Jacinto mountains, and north to Washington. A slender grass 4 to 12 inches high, with loose, spreading panicles. Lemma awnless.

1955. Agrostis lepida
A tufted perennial with short rootstocks. Sequoia National Park, Kern Canon, in high meadows.

1956. Agrostis longiligula
An erect grass about 2 feet high, with narrow, but loose panicle. In bogs and wet places, Mendocino County northward.

1957. Small-leaved Redtop Agrostis microphylla
A Pacific species, found from British Columbia to Lower California along the coast and in the Sierra Nevadas. A bunch grass without rootstocks, very variable in appearance. Dwarf or up to 3 feet high.

1958. Seashore Redtop Agrostis pallens
Washington and Oregon to San Francisco Bay region, along seashore. Not found in the interior. Stems erect, 8 to 16 inches high, from creeping rootstocks.

1959. Alpine Redtop Agrostis Rossae
In the high mountains, Sierra Nevadas. Resembles *Agrostis exarata*, but smaller, 4 to 8 inches high. June and July in California. Palatable to all classes of stock, but usually at too high elevations for cattle.

1960. Mexican Redtop Agrostis Schiedeana
A bunch grass with slender culm, 1 to 3 feet high. Grows in wet meadows, in high mountains. It is good forage, especially for cattle and horses, early in season.

1961. Creeping Redtop Agrostis stolonifera
Occurs in California on moist ground, at low elevations, Mendocino County, south, near the coast, and in Mariposa County and Inyo County. Culms decumbent at base, sometimes with long rooting stolons.

1962. Thurber's Redtop Agrostis Thurberiana
A slender, tufted grass, 4 to 16 inches high, with soft, flat leaves, occurring on moist sites in the mountains.

1963. Nit Grass Gastridium lendigerum
Spikelets one-flowered glumes much longer than floret. A native of the Mediterranean region. Occurs on dry hills and waste places at moderate elevations; Coast Ranges.

1964. Aleutian Reed-Grass — Calamagrostis aleutica
Along the Pacific coast to central California. In bogs, swampy and marshy places near coast to Monterey.

1965. Brewer's Reed-Grass — Calamagrostis Breweri
Mountain meadows of high Sierra Nevadas.

Calamagrostis Bolanderi
Bogs and moist ground, Mendocino County and Hmboldt, along coast. A grass 3 to 4 feet high.

1966. California Reed-Grass — Calamagrostis Californica
A rare and little known species, having more rigid blades than *C. canadensis* and callus hairs only 1-2 as long as lemma. Sierra Nevadas.

1967. Bluejoint — Calamagrostis Canadensis
Meadows and open woods in the high Sierra Nevadas, Lake Tahoe to Whitney, and north into Canada. Of low forage value.

1968. Dense Reed-Grass — Calamagrostis densa
Oregon and California; Marin County north along Coast Ranges, and in northern Sierra Nevada foothills into high mountains. Good forage in Trinity County.

1969. Calamagrostis crassiglumis
Rare. Only collected in Mendocino County in swampy soil.

1970. Calamagrostis foliosa
Leaves mostly basal; numerous. Blades involute and firm. Humboldt County and Mendocino County.

1971. Northern Reed-Grass — Calamagrostis hyperborea
In mountain meadows of the high Sierra Nevadas; along the Pacific Coast into Canada; in the Rockies; in damp soil. June, August. Good forage where abundant enough.

1972. Purple Reed Grass; Purple Pine-Grass — Calamagrostis purpurascens
Chiefly in the high Sierras in mountain meadows. Mt. Tamalpais and northward to Alaska. A deep-rooted grass, so is adapted to dry situations. Grazed in spring.

1973. Pine-Grass — Calamagrostis rubescens
Santa Clara and Santa Cruz counties north into Canada. Common in low pinewoods, also in meadows and prairies. July, August. Grazed freely in spring, but later becomes tough.

1974. Beach Grass; Marram Grass; Sand Grass — Ammophila arenaria
A stout perennial, with long blades and long scaly, creeping rootstocks, a few feet to 100 feet long. Occurs in sandy lands along the coast and forms one of the best sand binding grasses. Introduced on Pacific Coast in 1876 for binding sand at Golden Gate Park.

1975. Fuzzy Top — Lagurus ovatus
A low annual with flat blades and long woolly panicles. Berkeley and Pacific Grove.

VII. AVENEAE

1978. Velvet-Grass — Notholcus lanatus
Plant grayish, velvety, pubescent. A native of Europe, introduced into California, first mentioned in 1880 as being found here. Fields and waste places. Of little value for forage.

1979. Silvery Hair-Grass — Aira caryophyllea
Occurs from British Columbia to southern California. In fields and waste places; Marin county. May, July. No forage value.

1980. — Aira capillaris
Similar to above, but more diffuse panicles and awnless florets. Humboldt County.

1981. Annual Hair-Grass — Deschampsia danthonioides
Occurs in open ground in California, not in higher mountains; Alaska to Mexico. A slender grass 6 to 15 inches high, with thread-like branches. It is palatable but not abundant enough to be of importance.

1982. Tufted Hair-Grass — Deschampsia caespitosa
Along the Pacific coast to southern California in mountains. Common in bogs and meadows. Good forage for cattle and horses.

1983. Slender Hair-Grass — Deschampsia elongata
A slender, tufted perennial, annual in Alaska, and nearly always with the appearance of an annual because of shallow roots. Generally in dry situations. July, August. Low forage value.

1984. Graceful Hair-Grass — Deschampsia gracilis
An annual, leaves smooth and thread-like. Occurs on moist, well drained meadows.

1985. California Hair-Grass — Deschampsia holciformis
Monterey County northward along coast in marshes, etc.

1986. Beardless Trisetum — Tristeum Brandegei
Mountain meadows of the Sierra Nevada. June and July. Very palatable to sheep and horses.

1987. Tall Trisetum, Nodding Oat-Grass — Trisetum canescens
Mountain meadows, ravines, Coast Ranges, and Sierra Nevada south to Tulare County; Mt. Tamalpais. April to July. Well suited for forage for cattle.

1988. Nodding Tristeum; — Trisetum cernuum
In northern California in moist woods, Mendocino County. May, July.

1989. — Trisetum Congdoni
Meadows and slopes above timber line. Resembles *T. spicatum*, but has smooth sheaths and blades.

1990. Spiked Trisetum — Trisetum spicatum
In the Sierra Nevadas in the higher mountains. Very variable. Smooth to densely pubescent. A characteristic alpine grass mostly above timber line. Good forage for sheep.

1991. Prairie-Grass — Sphenopholis obtusata var. lobata
Rare in California. A tufted perennial of the oat tribe.

1992. Mountain June Grass — Koeleria cristata

Mostly in the Coast Ranges, on dry soils; prairies. June, July. A very common grass on most of the northern ranges. Not abundant in California. Good forage.

1993. — Koeleria phleoides

A short annual with dense spike-like panicle. Introduced into California. Lassen Peak (1882) and Butte County.

1994. Barbed Oats — Avena barbata

Widely distributed in California, especially in the Coast Ranges and south. In fields and waste slopes. Good spring feed for stock. Horses fond of the tops.

1995. Wild Oats — Avena fatua and var.

Common in California in grain fields and waste places; foothills, southern California, Coast Ranges. May, August. Good forage when young.

1996. American Oat-Grass — Danthonia americana

Wet meadows and moist places in rocks in mountains through the Sierra Nevada southward. Palatable to all stock early in season.

1997. California Oat-Grass — Danthonia Californica

Dry hills in the Coast Ranges to San Luis Obispo. Rare in the Sierra Nevadas. Palatable to all classes of stock. Eaten by sheep only when quite young.

1998. Timber Oat-Grass — Danthonia intermedia

British Columbia to southern California. A short mountain grass 4 to 16 inches high, with numerous basal inrolled leaves. Occurs in meadows and on mountain slopes. Not of much value above 9000 feet; at lower elevations it is good forage for sheep in spring.

1999. Single-Spiked Oat-Grass — Danthonia unispicata

Rocky hills, Modoc and Lassen counties northward. Rare at higher altitude. Moderate amount of good forage.

VIII. CHLORIDEAE

2000. Bermuda Grass — Cynodon dactylon
Capriola dactylon

In Sacramento Valley, especially along irrigating ditches; fields and waste places. Very palatable for stock. Makes a good lawn grass and sand binding grass and resists trampling well.

2001. — Spartina foliosa

Salt marshes, San Francisco Bay southward. Useful for reclaiming marsh land. One to four feet high, rooting from the nodes.

2002. — Spartina gracilis

Alkaline meadows. Washington south to eastern California. Two to three feet high, blades flat, becoming involute.

2003. Bearded Crowfoot — Chloris elegans

An erect annual, 1 to 3 feet high, with smooth sheaths. Occurs in waste places, southern California to Texas. Palatable to all classes of stock.

BOUTELOUA GRAMAS

The grama grasses are very nutritious. They form the principal part of the forage in the great plains region and in most parts of the southwest. About thirty-five species in western and southwestern United States.

2004. Needle Grama Bouteloua aristidoides
Southern California. common on bottoms and desert mesas. Very drought resisting. When mature it is not eaten because of sharp awns.

2005. Bouteloua arenosa
Prostrate or spreading annual in loose sandy soil.

2006. Tall Annual Grama Bouteloua barbata
Southern California in deserts, usually under brush; up to 5,000 feet. A very variable annual. Good forage.

2007. Side Oats-Grama Bouteloua curtipendula
Southern California on plains and dry rocky hills, up to 7,000 feet. An important forage plant in arid and semi-arid regions.

2008. Blue Grama Bouteloua gracilis
A stout, smooth perennial with strong rhizomes forming a rough sod. Plains and prairies up to 8,000 feet. June to September. The most important grass of Great Plains and southwestern regions. Excellent forage; withstands trampling.

2009. Hairy Grama Bouteloua hirsuta
A tufted, rigid, erect fibrous rooted perennial, 8 to 18 inches high, on dry sandy plains and high mesas. July. Excellent forage; especially valuable for winter forage.

2010. Purple Grama Bouteloua radicosa
Upper foothills and mountains, southern California. A stout perennial with rhizomes, bunched. September. Excellent forage, but not abundant.

2011. Rothrock's Grama Bouteloua Rothrockii
Southern California to Mexico. A tufted, sparingly branched perennial on upper mesas and open slopes, 1,500-5,000 feet. Important as a forage grass in some localities.

2012. Slough Grass; Rattlesnake Grass; Caterpillar Grass Beckmannia erucaeformis
Plants light green, 1 to 3 feet high, spikelets nearly circular. Swamps and ditches, San Francisco Bay north to Yreka and east. Truckee.

2013. Goose-Grass Eleusine indica
Culms flattened, decumbent at base. A common roadside weed. Los Angeles.

2014. Red Sprangle-top Leptochloa filiformis
Southern California, open ground; Imperial Valley. Florets, awnless glumes, long, mucronate.

2015. Leptochloa fascicularis
Erect, 1 to 2 feet high. Sheaths smooth. Ditches and moist, especially alkaline places. Fresno County, Kern County.

2016. Close flowered Sprangle-top Leptochloa imbricata
Southern California; a stout annual with erect, smooth, whitish-colored stems. Ditch banks. June. San Bernardino Mountains.

IX. FESTUCEAE

Spikelets 2—several flowered.

2017. Monanthochloe littoralis
A creeping stoloniferous perennial, of salt marshes and tidal flats. Santa Barbara southward.

2018. Orcuttia Greenei
Known only from Chico. Lemmas 5-toothed at apex. The nerves extending into the teeth.

2019. Giant Reed Arundo donax
Introduced ornamental, frequently cultivated as a windbreak.

2020. Common reed Phragmites communis
Culms as much as 12 feet high from creeping rhizomes. Fresh water swamps, marshes and around springs, Mendocino County, Suisun marshes, etc.

2021. Low Tridens Tridens muticus
Tridens pulchellus (syn. Triodia)
Dry slopes, central Sierra Nevada, South Mohave, etc.

2022. Dissanthelium Californicum
An annual, known only from California, Tassajara Hot Springs; San Clemente Island.

ERAGROSTIS

Over 100 species are known in the world, the majority being in the Old World, chiefly in the tropics, closely allied to **Poa**, Blue grass, but with three-nerved instead of five-nerved lemmas. There are eight species in California, inhabiting chiefly, dry sandy places, fields, barren hills.

These species are of little or no value for forage, except one species, *Eragrostis lugens* which is found in San Diego County where it is grazed. It makes good winter forage and is one of the earliest grasses to begin growth in the spring.

2023. Anthochloa colusana
A low cespitose annual with flat blades and panicles partially included in the sheaths; only known from Colusa County in uncultivated alkali (goose-lands).

MELICA

About thirty species known, with eighteen in the United States, and fourteen of these in California.

2024. Bearded melic-grass Melica aristata
Fertile lemmas, tipped with a short awn. Plant not bulbous, dry woods and slopes and meadows. In the Sierra Nevada from Fresno County northward.

2025. Onion grass Melica bella
Washington to central California, characteristic of rocky woods, ravines and hills in yellow pine belt, never in wet situations. Panicle narrow, branches short, erect; scattered, so not very valuable as forage.

2026. Bulbous-rooted melic grass Melica bulbosa
Mountains and rocky woods, Ventura County, northward to Oregon. Spikelets small, tawny or purplish, glumes shorter than lemmas.

2027. Small onion grass Melica fugax
Washington to California. In mountain valleys, open pine woods and dry mountain sides. Highly palatable to all classes of stock.

2028. Geyser's onion-grass Melica Geyeri
Oregon to central California. In pine woods along streams and moist canons.

2029. Tall melic-grass Melica frutescens
Confined to California. In southern California at low altitude growing in dense clumps.

2030. Harford's melic-grass — Melica Harfordii
A Pacific sp. from British Columbia to Monterey County.

2031. — Melica inflata
Only found in California, Shasta County.

2032. Small flowered Melic-grass — Melica imperfecta and vars.
San Francisco southward; Marin County, and Berkeley. Dry open woods; often good forage.

2033. Showy onion-grass — Melica spectabilis
Washington to California, a stoloniferous grass of damp grassy meadows in the mountains. May, July. Good forage value.

2034. Few flowered melic-grass — Melica stricta
In the mountains of Sierra Nevada. April-July, growing in dry open sandy slopes, or among rocks, at high elevations. A good forage grass, but scattered.

2035. Alaskan onion-grass — Melica subulata
Along the Pacific Coast, Alaska to California. Lemmas prominently, 7 nerved—exceeding the glume.

2036. — Melica Torreyana
Culms loose from a decumbent base, thickets and banks at low altitude, central California, Mendocino County, Butte County, etc.

2037. — Pleuropogon Californicus
A weak annual, 1 to 3 feet high, with short blades, and long obtuse spikelets. Wet meadows and marshy ground. Mendocino County, south to San Francisco Bay region, West Berkeley.

2038. — Pleuropogon refractus
A perennial similar to above found in northern part of state. Spikelets reflexed, lemmas long awned.

2039. Salt grass — Distichlis spicata
Common in salt marshes and alkaline soil, along coast and in interior deserts. Good feed for horses and cattle.

2040. Quaking grass — Briza minor
A native of Europe, rather common, Central California, north to British Columbia. Waste places.

2041. — Briza maxima

2042. — Briza media
Introduced from Europe, not abundant.

2043. Orchard grass — Dactylis glomerata
A native of Europe, commonly cultivated in United States as a meadow grass. A fine forage grass relished by all classes of stock. It makes a good hay and withstands grazing well.

2044. Golden-top — Lamarckia aurea (syn. Achyrodes aureum)
A native of the Mediterranean region, naturalized in southern California, also found in Santa Clara County.

POA

This genus is a member of the largest division of the grass family, the Festuceae. There are about one hundred and fifty species of Poa found in the World, of which seventy-nine are found in North America. Tufted or stoloniferous grasses with flat or folded leaves, and contracted or open panicles. There are thirty species in California, the most important of which are:

2045. Buckley's Bluegrass Poa Buckleyana

2046. Canadian Bluegrass Poa compressa

2047. Fendler's Bluegrass Poa Fendleriana

2048. Kentucky Bluegrass Poa pratensis

2049. Little Bluegrass Poa Sandbergii

GLYCERIA

The above are fairly abundant in California and are considered to be good forage grasses on all ranges.

2050. Glyceria borealis
Occurs in shallow water, central and northern California.

2051. Glyceria elata
A tall, succulent grass of wet meadows, shady, moist woods, Coast Ranges, and in the Sierra Nevada.

2052. Glyceria erecta
Mountain meadows, Sierra Nevada to southern Oregon.

2053. Glyceria leptostachya
In shallow water, Sonoma County.

2054. Glyceria pauciflora
Sierra Nevada. A decumbent rooting base with creeping rhizomes.

2055. Glyceria plicata
Mendocino County, northward, in wet situations; thick, succulent culms 4 to 5 feet tall, blades broad.

2056. PUCCINELLIA

There are five species of Puccinellia in California, all being found on saline or alkaline soil. Along coast or in coast ranges, and northward.

2057. FESTUCA

There are about 100 known species of which number there are thirty perennial and twelve annual species in North America.

There are twenty-five species found in California, twenty-three being found in waste places, dry open hills, throughout California, and two species in moist situations such as meadows.

They are usually important in the West. One, *Festuca elatior,* Meadow fescue, is important, and valuable for pasturage and hay, while *Festuca rubra,* red fescue, is a good sand binder, also good for lawns.

BROMUS

There are over 100 known species of which sixty-four occur in the United States, nineteen of which are adventive, forty-five are native. California leads with twenty-four species. They are annual, biennial or perennial grasses, with large nodding panicles. This genus is scattered throughout California, from the sand along the coast to the higher mountains. Very few are of importance as forage, because of coarseness and harshness of foliage and panicle. A few are weeds and pests. The most important from a forage standpoint are:

2058. Rescue grass — Bromus unioloides

2059. Richardson's brome grass — Bromus richardsonii

2060. Large mountain brome grass — Bromus marginatus

2061. Smooth brome grass — Bromus inermis

X. HORDEAE

RYE-GRASS LOLIUM

2062. Italian Rye-Grass — Lolium multiflorum
Roadsides, fields and waste places. Good forage, agricultural crop. Well adapted to coast. Fields. Introduced.

2063. Perennial Rye-Grass — Lolium perenne
Not common except as a lawn grass. Good pasture. Introduced.

2064. Darnel or California Cheat — Lolium temulentum
Weed, common in oat fields, poisonous only when seeds are affected by a fungus. Frequent in oat fields and waste places. Of some value for hay, but not worth cultivating. Not the cheat or chess of the eastern states. Introduced.

2065. Lolium subulatum
Introduced. West Berkeley only. Rare.

2066. Monerma cylindrica
Salt marshes. Bay region to San Diego.

2067. Lepturus incurvatus
Mud flats and salt marches. Bay region to San Diego.

2068. Scribneria Bolanderi
Sandy or sterile ground. Yosemite region and occasionally elsewhere to Washington. Rare. A low, slender annual with short, narrow blades and slender spikes.

WHEAT GRASSES AGROPYRON

2069. Agropyron junceum
Rarely collected and perhaps not now on the coast. Introduced. Lake Merced near San Francisco.

2070. Quack Grass — Agropyron repens
Introduced but not as troublesome on the coast as in the east. It has persistent rootstocks difficult to eradicate.

2071. Smith's Wheat Grass — Agropyron Smithii
Dry, alkaline soil, Modoc County. Useful forage grass.

2072. Agropyron subvillosum
Lassen County.

2073. Parish's Wheat Grass — Agropyron Parishii
San Bernardino County and Monterey County.

2074. Agropyron laeve
Dunlap to Millwood. Rare.

2075. Smooth Wheat Grass — Agropyron tenerum
Abundant in Sierras and coast. An important bunch grass.

2076. Bearded Wheat Grass — Agropyron caninum
Dry hillsides, Sierras, and southern mountains.

2077. Vasey's Wheat Grass — Agropyron Vaseyi
Rocky hillsides, northeastern California.

2078. — Agropyron scabrum
Probably introduced. Eel Ridge only.

2079. — Agropyron flexuosum
Mountain slopes, Modoc County.

2080. — Agropyron Scribneri
High Sierras.

2081. — Agropyron Pringlei
Sierras, 7,000 to 12,000 feet.

BARLEY GRASSES HORDEUM

2082. Perennial Barley Grass; Foxtail; Tickle Grass — Hordeum jubatum
Most troublesome in northeastern California. Alfalfa fields.

2083. Annual Barley Grass — Hordeum murinum
Common in interior valley and coast. Good feed when young, a pest when old. Introduced from Europe.

2084. — Hordeum nodosum
Frequent waste places. Introduced.

2085. Alkali Barley Grass — Hordeum pusillum
Annual, southern California.

2086. — Hordeum gussoneanum
Waste places. Introduced from Europe.

LYME GRASSES ELYMUS

2087. — Elymus caput-medusae
Open grounds. Introduced.

2088. — Elymus cinereus
Lancaster only.

2089. Giant Lyme-Grass — Elymus condensatus
Called rye grass in the range country. A valuable winter forage. Sometimes 10 to 12 feet high. Bay region and throughout the state, occurring in several forms.

2090 Slender Wheat-Grass — Elymus triticoides
From the coast to the interior. A valuable native hay and pasture grass.

2091. Sea Lyme Grass — Elymus arenarius
Sand binder on the coast.

2092. Hairy Lyme-Grass Elymus pubescens
Along coast.

2093. Smooth Lyme-Grass Elymus glaucus
Extremely variable. Throughout state, woods and dry hillsides. Good range forage.

FALSE BARLEY GRASSES SITANION

2094. Sitanion Hanseni
Amador County and southern California.

2095. Sitanion jubatum
Throughout California on brushy hillsides. Not troublesome in cultivated lands, although looking just like foxtails.

2096. Sitanion minus
Dry hills and slopes at middle elevations.

2097. Sitanion glabrum
Dry alkaline soil. Southeastern California mountains.

2098. Sitanion Californicum
Sierras at high and low elevations. Frequent.

2099. Bottle-brush grass Hystrix Californica
Woods and shaded banks. Bay region.

XI. BAMBUSEAE

There are no members of the bamboo tribe in California except those in cultivation. The Arundinarias are frequently used as shrubbery and representatives of the genus Bambusa are occasionally seen in our parks. The common Giant reed used extensively in the valley as a windbreak is not a bamboo. See Arundo donax of the Festucaceae.

HORSE-TAIL FAMILY EQUISETACEAE

2100. Scouring Rush Equisetum robustum
Near San Bernardino.

2101. Scouring Rush Equisteum variegatum
Near San Bernardino and near Three Rivers.

2102. Scouring Rush Equisetum arvense
Common in moist, shaded places in California.

FERN FAMILY POLYPODIACEAE

Contributed by Mrs. Carlotta C. Hall.

2103. Adder's Tongue Ophioglossum vulgatum
Siskiyou County.

2104. Adder's Tongue Ophioglossum californicum
Near San Diego, near Ione, Amador County.

2105. Adder's Tongue Ophioglossum nudicaule
Near San Diego.

2106. Moon wort Botrychium simplex
High Sierra Nevada.

2107. Moon wort Botrychium lunaria
White Horse Lake, Modoc County, Sisson.

2108. Grape fern. Botrychium californicum
Damp, densely shaded places in the Sierra Nevada and Coast Ranges, Eighteenth crossing near Sisson, Fallen Leaf Lake, near Quincy, Plumas County.

2109. Polypody — Polypodium falcatum
On damp rocks or trees, Cazadero, Sonoma County.

2110. Polypody — Polypodium hesperium
Snow Canon, San Bernardino Mountains, 3,600 feet to 5,500 feet altitude.

2111. Polypody — Polypodium Scouleri
On rocks and trees, exposed or in shade along the coast. Point Reyes, Marin County, Pilarcetos Canon, San Mateo County, San Francisco.

2112. Polypody — Polypodium californicum
On damp rocks and steep banks especially along streams. Common in Coast Ranges and in the Sierra Nevada to 4,000 feet at least.

2113. Golden back — Ceropteris triangularis
Very common on rocks and banks at lower and middle altitudes.

2114. California Gold Fern — Ceropteris viscosa
Teurecula; Santa Catalina Islands, dry hills near San Diego.

2115. Cloak fern — Notholaena parryi
Among rocks of the desert area; White Water; Pleasant Canon; Paramount Mountains, 6,000 feet; Ord Mountains, Providence Mountains, Mountain Spring, San Diego County.

2116. Cloak fern — Notholaena newberryi
Among rocks in the coast mountains of southern California; Twin Oaks, San Diego County; San Bernardino; San Jacinto Mountain, Potrero Grade, San Diego County.

2117. Cloak fern — Notholaena cretacea
Spring Valley near San Diego and reported from Palm Springs and Slover Mountain.

2118. Cloak fern — Notholaena tenera
A rare fern of the desert area; Providence Mountains, Palm Springs.

2119. Venus Maiden Hair — Adiantum capillus veneris
Moist places, South Coast Ranges and Sierra Nevada at first waterfalls in canons near Santa Barbara; San Gabriel Canon and Arroyo Seco; Los Angeles County.

2120. Maiden Hair — Adiantum jordanii
Damp places, lower altitudes in Coast Ranges and Sierra Nevada; Catalina Islands, Berkeley hills, Sausalito.

2120a. Five finger — A. pedatum L.
Damp shady places of Coast Ranges and Sierra Nevada; Yosemite; Glen Alpine; Santa Barbara canons; Marin County.

2120b. Brake or Bracken — Pteris aquilina L.
Common throughout California.

2120c. — Cheilanthes californica (Nutt.) Mett.
Lee of rocks, Coast Ranges and Sierran foothills; Santa Cruz Mts.; Ramona near San Diego; Monterey County; El Campo Road—five or six miles east of San Diego; Hite Cove; Santa Barbara; San Gabriel Mountains, Los Angeles County.

2120d. Cheilanthes viscida Dav.
Palm Springs; Whitewater Canon; Pleasant Canon; Panamint Mountains, 4000 to 5000 ft. altitude.

C. cooperae Eat.
Crevices of rocks; Santa Barbara (type locality); Hite Cove, Mariposa County; Mt. Shasta; Mt. Slover near Colton, San Bernardino County.

Lace Fern C. gracillima Eat.
Crevices of exposed rocks, common in Coast Ranges and the Sierra Nevada; Yosemite Valley; Mariposa Grove; Mt. Diablo; Mt. Tamalpais.

2121. C. clevelandii Eat.
Dry exposed hillsides among rocks in So. California; Ramona, near San Diego; Twin Oaks, San Diego County; El Campo Road from San Diego.

2122. Lip Fern Cheilanthes feei
Providence Mountains.

2123. Lip Fern Cheilanthes parishii
Andreas' Canon, near Palm Springs.

2124. Lip Fern Cheilanthes fibrillosa
San Jacinto Mountains.

2125. Lip Fern Cheilanthes myriophylla
Common throughout the state. Near San Diego, San Gabriel Mountains, Yosemite, Mt. Diablo.

2126. Rock Brake Cryptogramma acrostichoides
Crevices of rocks, high mountains of the Sierra Nevada; Sentinel Dome, Yosemite, Mt. Tallac.

2127. Cliff Brake Pellaea breweri
Among rocks at high altitudes in the Sierra Nevada; Sonora Pass; Amador Pass; Mt. Dana; near Lundy, Mono County.

2128. Coffee-fern Pellaea andromedaefolia
Common in partial shade in the Coast Range, foothills of the Sierra Nevada, and mountains of southern California; Berkeley hills; Pasachua; Waterman Canon.

2129. Cliff Brake Pellaea brachyptera
Among rocks on dry hillsides at high altitudes in the north Coast Ranges and the Sierra Nevada; Snow Mountain, Lake County; Red Mountain, Lassen Peak, Trinity County; Plumas County; Little Yosemite.

2130. Bird's-foot Cliff Brake Pellaea ornithopus
Common among rocks on dry hillsides in the Coast Ranges and Sierra Nevada.

2131. Cliff Brake Pellaea wrightiana
San Bernardino Mountains.

2132. Cliff Brake Pellaea densa
Among rocks in north Coast Ranges and Sierra Nevada; Yosemite; Marin County; Donner Pass; Lassen Peak.

2133. Cliff Brake Pellaea flexuosa
San Diego County.

2134. Cliff Brake Pellaea bridgesii
Common in middle altitudes in Sierra Nevada; Yosemite Valley, near Donner Lake; near Lundy, Mono County; Glen Alpine, Long Lake, Plumas County.

2135. Ostrich Fern — Blechnum spicant (struthiopteris)
On swampy hillsides in the Coast Ranges from Santa Cruz northward; Sausalito; Crescent City; Pescadero, San Mateo County.

2136. Chain Fern — Woodwardia spinulosa
Moist places at low altitudes in Coast Ranges, Sierra Nevada and southern California; Berkeley hills; Marin County; Yosemite; near San Bernardino.

2137. Spleenwort — Asplenium vespertinum
Under overhanging rocks, southern California; Ramona, San Diego County; Twin Oaks, San Diego County.

2138. Lady fern — Asplenium felix-foemina
Damp places; usually in or near running water; Laguna Puerca. San Francisco County; Lake Merced, San Francisco County; Glen Alpine; Butterfly Valley, Plumas County.

2139. Beech Fern — Phegopteris alpestris
At high altitudes in the Sierra Nevada; Pyramid Peak, Mt. Silliman; Mt. Shasta; Lassen Peak; Amador Pass.

2140. Oak Fern — Dryopteris nevadensis
Damp places in Sierra Nevada; Webber Lake; Berry Creek Canon; Butterfly Valley, Plumas County; Mariposa County.

2141. Oak Fern — Dryopteris patens
Damp places in the canons back of Santa Barbara, near Palm Springs; Santa Anita Canon.

2142. Oak Fern — Dryopteris filix-mas
Holcomb Valley in San Bernardino Mountains.

2143. Rigid wood-fern — Dryopteris rigida
Common in shady places in Coast Ranges. Sierra Nevada foothills, and southern California.

2144. Oak Fern — Dryopteris spinulosa
Moist woods of north Coast Ranges; Bear Valley, Marin County; Duncan Mills, Sonoma County; near Eureka, Humboldt County.

2145. Holly Fern — Polystichum lonchitis
Mountains of northern California; Long Lake, Plumas County; Siskiyou County.

2146. Sword fern-shield fern — Polystichum munitum
Very common in Coast Ranges, lower altitudes in the Sierra Nevada and southern California.

2147. Polystichum — Polystichum munitum imbricans
Near Ukiah; Red Mountain.

2148. Polystichum — Polystichum scopulinum
Snow Canon; near Nelson Point, Plumas County.

2149. Polystichum — Polystichum californicum
Shady canons in Coast Ranges; foothills of Santa Clara County, Tamalpais Mountain.

2150. Polystichum — Polystichum lemmonii
Among rocks in the north Coast Ranges; Dorleska, Trinity County; near Mt. Shasta, Mt. Eddy.

2151. Prickly shield-fern Polystichum aculeatum
Shady canons of the Coast Ranges; Berkeley hills; hills near Los Gatos; near Santa Cruz.

2152. Bladder Fern Cystopteris fragilis
Common in damp, shady places in the Coast Ranges and the Sierra Nevada.

2153. Woodsia Woodsia scopulina
In the Sierra Nevada; Mono Trail at 9,000 to 10,000 feet altitude: Mt. Silliman; Kaweah Peak, Yosemite.

2154. Woodsia Woodsia oregana
High altitudes in the Sierra Nevada; Lassen County, San Bernardino Mountains.

CLUB MOSS FAMILY LYCOPODIACEAE

2155. Lycopodium spp.
To be looked for in cold, damp woods in mountains.

SELAGINELLA FAMILY SELAGINELLEAE

2156. Resurrection plant Selaginella rupestris
Sierras.

2157. Quillwort Isoetes bolanderi
Ponds and shallow lakes. Sierras.

2158. Isoetes pygmea
Deeply submerged in running water. Sierras.

2159. Isoetes braunii

2160. Isoetes melanopa
Reported as from California.

MARSILIACEAE

2161. Marsilia Marsilia vestita
Near Visalia. Leaflets broadly cuneate. In swamps which become dry in summer.

2162. Marsilia Marsilia quadrifolia
In Wahtoke Lake, Fresno County. In water, the leaflets which resemble those of oxalis, commonly floating on surface. Frequently cultivated. Introduced probably from Europe.

SALVINIACEAE

2163. Ozolla Ozolla caroliniana
Common in intramountane California. San Bernardino Valley, Owen's Valley, near Visalia, and at Three Rivers.

2164. Ozella Ozolla hedropidakum
Lakes in Fresno County, Wahtoke Lake.
Floating plants of small size which appear like moss on the water's surface. On close examination the leaves seem fern-like. They are deep bronze above and sulphury below. A small and interesting family of plants without close affinity to other groups.

CALIFORNIA BOTANICAL SOCIETY

The purpose of the Society is to promote investigation of the life history, habits, classification and floristic distribution of Californian and other plants.

It plans to diffuse knowledge concerning them in a way calculated to develop and strengthen interest in botanical science in California. The Society holds meetings for lectures and discussions, arranges field meetings and indoor demonstrations, makes collections and publishes a journal. It takes an active interest in the conservation of the native life of California and co-operates with other organizations in preventing threatened destruction of remarkable individual plants or plant societies in California.

SOME BOOKS ON CALIFORNIA WILD FLOWERS

For those who are interested in acquiring a botanical library for the study of the Wild Flowers of California, we suggest that they secure as many of the following books as possible. Some are out of print but can sometimes still be obtained in second-hand book stores:

Abrams, L. H.	Flora of Los Angeles and Vicinity.
Armstrong, Margaret	Field Book of Western Wild Flowers.
Behr, H. H.	Flora of the Vicinity of San Francisco, 1888.
Chandler, Katherine	Habits of California Plants (rare).
Clock, Emma G.	Wild Flowers from the Mountains, Canyons, and Valleys of California.
Davidson, Alice M.	California Plants in Their Homes.
Eastwood, Alice	Flora of the Pacific Coast.
Eastwood, Alice	Flora of the South Fork of the Kings River.
Gray, Watson, Brewer et al.	Botany of California, Vol. 1, 1876. Vol, 11, 1880, (rare).
Greene, E. L.	Flora Franciscana.
Greene, E. L.	Manual of the Bay Region.
Hall, H. M.	Compositae of Southern California.
Hall, H. M. and Mrs.	A Yosemite Flora.
Henshaw, Julia W.	Mountain Wild Flowers of America.
Jepson, W. L.	Flora of Western Middle California.
Jepson, W. L.	A School Flora for the Pacific Coast.
Jepson, W. L.	The Trees of California.
Jepson, W. L.	The Silva of California.
Jepson, W. L.	A Flora of California (in progress, many parts published).
Lemmon, J. G.	Western Cone Bearers (rare).
New York Botanical Garden	North America Flora (in progress, many parts published).
Parsons, M. Elizabeth	The Wild Flowers of California.
Rattan, Volney	A Popular California Flora.
Saunders, C. F.	With the Flowers and Trees in California.
Smith, Emory E.	The Golden Poppy (illustrated, rare).
Watsons, and D. C. Eaton	Botany of the Fortieth Parallel (King's Expedition, 1871, rare).
White, James T.	Flowers from Arcadia (colored illustrations and poems, rare).

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